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THIS WEEK'S NEWS

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ACCORDING TO A RECENT STATEMENT made by the Bishop of Coventry it is possible that the proposed competition for designs for the new Coventry Cathedral will be international in character. 350

THE MUNICIPAL COUNCIL OF NAIROBI invite architects in the U.K. and all British dominions, colonies and dependencies to submit designs in competition for the new City Hall group of buildings. Premiums of £550, £450 and £250 are offered. 353

THE AUSTRALIAN BATTLEFIELDS MEMORIAL COMMITTEE invite entry by British sculptors, artists, architects and designers in a competition for the design of an Australian War Memorial to be erected near Australia House, Strand, London. Prizes of £250, £150 and £50 are offered. 353

THE URGENT NEED for the reform of the Rent Restriction Acts was one of the things mentioned by Mr. John Watson, President of the R.I.C.S., at the Institution's annual dinner on March 14. 354

THE WINNING DESIGNS in the competitions sponsored by the Incorporated Association of Architects and Surveyors for rural and urban community centres are described and illustrated. 360

THE PRESIDENT of the National Federation of Building Trades Employers, Mr. Robert O. Lloyd, O.B.E., has strongly denied the suggestion that the N.F.B.T.E. is a body which represents the big builders rather than the smaller ones. 370

A PILOT SURVEY was carried out in 1949 by the Chief Scientific Adviser's Division of the Ministry of Works to measure man-hours and costs in house-building and to assess the effect of specific factors, such as incentive payments. An advance summary of the detailed report of the methods and findings of the pilot survey is given on 371

THE NATIONAL FEDERATION of Building Trades Operatives has prepared a scheme for the nationalisation of the building industry. 373

"ORGANIC" ARCHITECTURE

THE appropriation of the adjectives "functional" and "organic" to certain developments in modern architecture must have puzzled many intelligent people. There would seem to be no obvious reason why a building designed in a traditional manner should not be both functional and organic. But to the modernists this is impossible. "Functional" is now distinctly démodé, but "organic" has never quite lost currency owing to its use by Frank Lloyd Wright, who picked it up from his master Louis Sullivan and has since consistently applied it to his own work. "Organic Architecture," it will be recalled, was the title he gave to the four lectures which he delivered at the R.I.B.A. in 1939. "*Vers une Architecture*" was the title that Le Corbusier gave to his book of 1923. Mr. Bruno Zevi, in calling his recently published book "Towards an Organic Architecture,"* has taken a hint from each innovator and at the same time rather subtly suggested a critical attitude towards both. Mr. Zevi, who wrote this book for Italian readers while he was in this country during the war, is a young practising architect who has studied at the School of Architecture of the University of Rome, and at the Graduate School of Design of Harvard University. He has made a close study of the modern movement from its beginnings, and in this brief but lucid survey, which takes account of much that has been memorably written by others on the subject, he gives a comprehensive picture which is all the more interesting because it includes reference to some of the more recent developments in the United States.

The leaders and followers of the modern movement, as Mr. Zevi shows, are themselves far from being agreed on the exact meaning of the various adjectives by which certain trends or characteristics are denoted, but the broad distinction between the organic and the inorganic may be illustrated by the difference between Gothic and Renaissance: Gothic is organic because it "strives towards free expression," while Renaissance is inorganic because it is governed by "predetermined canons." Even the modernists themselves may not be organic. "In Le Corbusier's architecture," writes Mr. Zevi, "and still more that of Gropius, form derives from function and changes with changed conditions. But the important thing is to see whether we are to relate this function to some theoretic, classic and predetermined plan or to the natural growth of things from their essential nucleus." Frank Lloyd Wright is truly organic. "Le Corbusier's principle in its extreme form is very simple; merely that houses should be designed without any internal partitions and divided up just as the owner happens to like. Wright has never followed this principle: for him a free plan has always been—and still is—a point of arrival and not a point of departure. . . . He attained spatial continuity not by following any formal or mechanical system but simply by studying human needs and necessities."

"Organic," then, is a synonym for rational informality—the ordering of space from a "central nucleus." It is the opposite of the axial and the symmetrical, though why modernists should so much dislike symmetry is difficult to understand, for what could be more symmetrical than the human form, which is undeniably organic? Wright's work, of course, is not so much a "natural" as an "ordered" growth, and although it is invariably affected by site conditions there is rarely anything that is not under complete control; in fact, it is all very carefully contrived, the plan shapes being such as will produce dramatic or picturesque exteriors. The most significant thing about Wright, apart from his genius, is that he is primarily a domestic architect. Organic architecture in the United States, in fact, finds chief expression in domestic work in the "wide open spaces." It would be interesting to see how it would fare on a narrow site in a London street. Is it possible that Wright's intense dislike of cities is due to the

* London: Faber and Faber, Ltd. Price 25s. net.

obstacles which they unavoidably oppose to the realisation of his spatial ideas?

Although Wright naturally looms large in this book the author contrives to give a comprehensive summary of the whole modern movement. One most significant point which he brings out is that modernism has never flourished under a dictatorship. Hitler and Mussolini both suppressed it and substituted versions of neo-classicism. In Russia the same thing has happened, though oddly enough not by the personal decree of Stalin but because the people seem to prefer the classical style. Modernism has made greatest progress in the U.S.A., largely owing, apart from Wright, to the presence there of many European architects denied freedom of thought and action in their own countries.

Mr. Zevi acknowledges the pioneer influence of British architects—Voysey, Philip Webb and Mackintosh—but oddly enough makes no mention of Lethaby, the greatest revolutionary of all, at least in his teaching. The book is fully illustrated, but of modern British work the author shows nothing more recent than 1938; the inclusion of a few of our recent schools would have been useful in showing the course that modernism is following in this country. No more than half a dozen contemporary British architects are mentioned by name (F. Gilbert, by the way, would appear to be a misprint for F. Gibberd).

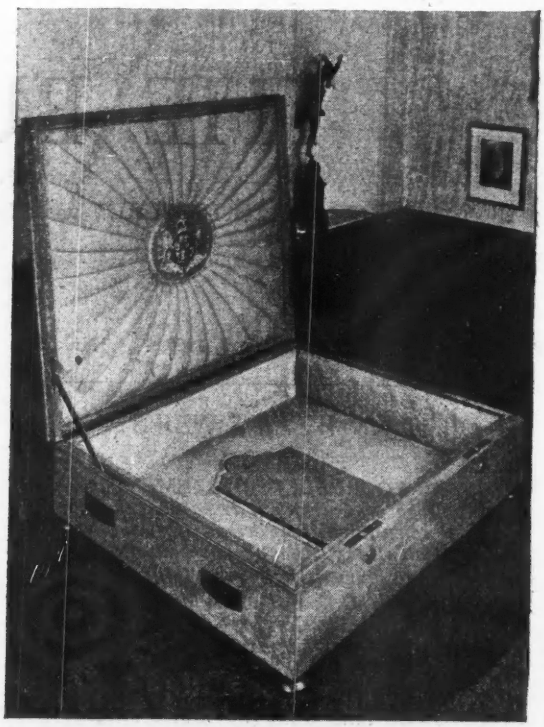
Organic architecture as practised by Wright, though it has not been uniformly rational, has at least caused many architects to ponder more deeply over the problems of space and its enclosure. Mr. Zevi, as the title of his book suggests, is far from being satisfied with the present general state of progress; in point of fact, he is a shrewd critic. Much modern work is obviously deficient in grace and warmth. No doubt æsthetic pleasure may be found in the contemplation of an efficient (or organic) arrangement of space enclosed by bare geometrical forms. But the ordinary man wants something more. Modernism of the packing-case order with alternate horizontal strips of solid and void for elevations can be accepted in small quantities; repeated again and again it becomes painfully monotonous and depressing. Let us hope that better things are in store.

EXHIBITION CONTROVERSY

A MERE glance at the history of exhibitions is enough to show that they are fated to arouse controversy. Paxton was derided for his "giant glasshouse,"; Eiffel reviled for his Tower; and Louis Sullivan snubbed for his originality by the reactionary East at Chicago in 1893. Conflict of opinion between the traditionalists and the adventurers seems as inevitable over exhibitions as it is over permanent architecture, so we should not be unduly disturbed by the current wrangle about the 1951 affair.

Whatever may be contemplated elsewhere by way of additions, we feel that there should be no interference with what is being done in the central nucleus on the South Bank. Let this be as unconventional as its architects can reasonably make it. As Mr. Hugh Casson said in his entertaining and informative paper at the R.I.B.A. (reported in *The Builder* last week), for over a hundred years the exhibition "has been a laboratory of architecture . . . the testing ground of experiment." Who knows that admirable developments may not arise from the fanciful structures of the South Bank? In any case, lightness and gaiety, even fantasy, are qualities to be aimed at in temporary exhibitions, and no one should grumble when they are captured.

We should like, by the way, to hear something more about those new temporary materials we were promised. We recall that the Franco-British Exhibition at Shepherd's Bush, in 1908, made great use of fibrous plaster "with boiled oil in it," and a very durable material it proved to be, in which some extremely bizarre effects were achieved. Cynics were not slow to point out, however, that the chief aim in such work should be the utmost degree of impermanence, and one humorist even suggested that an appropriate punishment for its perpetrators would be that decreed by the Mikado for his erring subjects—"something lingering, with boiling oil in it."



The Chest for Queen Mary's Carpet

A SYMBOL OF BRITISH CRAFTSMANSHIP

ADMIRERS in North America of the carpet made by H.M. Queen Mary, which has started the first stage of its tour, will doubtless be greatly impressed also by the specially made chest in which the carpet will be contained during its travels to some 20 Canadian and American cities where it will be placed on exhibition.

Designed by Mr. Frankland Dark, F.R.I.B.A., F.I.A.A., the chest was made by Messrs. Chubb and Sons, who hold the Royal Warrant as His Majesty's patent lock and safe makers. It is of English brown oak, lined with stainless steel, measures about 4 ft. by 3½ ft., stands 14 in. high on special bronze feet, and is fitted with hand-made locks incorporating special safety devices. Queen Mary's own cipher and crown in ivory are inlaid in the centre of the lid.

The quilting which cushions the interior of the chest is of beige velvet, to match the predominating colour in the carpet, and is lined with white sharkskin and filled with four thicknesses of a new material called "domett." A simple Welsh traditional design of interlocking circles has been used, with the halves of each circle worked to form a leaf pattern. On the inside of the lid, Queen Mary's coat-of-arms has been worked in full colours and threads of precious metals.

Although the chest is throughout a work of art, only three weeks elapsed between the making of the first rough sketch and the completion of the work.

NOTES AND NEWS

Should Architects be Mass-trained?

THE note in last Sunday's *Observer* on the proposal to build a new block of Arts Faculty lecture rooms at Cambridge—to cover about 13 acres and include a hall seating 1,000—raises two very important points relating to teaching in general. The writer of the note (we suspect the ubiquitous Mr. Ivor Brown) stated that although lecture rooms are overcrowded at Cambridge, he does not feel that this fact is the only reason for the move. He considers that the general trend towards mass teaching has now definitely established itself at the Universities, and cited Macaulay as recommending his nephew, Sir George Trevelyan, to follow the old tradition of learning and avoid even the tyranny of a supervisor. The author ends by saying: "We seem now to be going to the other extreme; lectures, classes, seminars and study groups are becoming a substitute for solitary studies. The Universities should question this dubious tendency."

We are discussing this subject at some length, as we feel that the approach to architectural teaching may also be tending towards mass-production of students, at least by comparison with the situation of 50 years ago. We realise, of course, that the number of students entering or wishing to enter the profession makes full individual teaching difficult, but the tendency would appear to be towards a definite communal approach. At one London school, group working is now a recognised form of teaching; the ideas of the group are "pooled" and sifted, and if all is well the best solution is adopted.

Perhaps this method is in the long run the best policy; yet we cannot help feeling that such a reliance upon the linking-up of ideas is contrary to the individuality of the true artist. It could be said that this has little to do with lecturing, but we do suggest that as soon as the teaching of architecture can assume a more individual aspect, a greater individuality will be developed. As it is, the lecture room, group work and the utilitarian character of most current architecture would seem inevitably to lead to students developing into capable constructors, but something short of talented artists.

Community Centre Designs.

FEW BRANCHES OF SOCIAL PLANNING give rise to greater difficulties than the design of buildings intended for the recreation of communities—especially when a building is expected to serve multiple purposes and be used by men and women of all ages. The results of the competitions recently organised for designs on rural and urban sites well illustrate this difficulty. The promoters deliberately refrained from stipulating the amount and nature of the accommodation required, with the result that the solutions indicate a wide divergence of ideas (and in some cases lack of ideas) of what constitutes a community centre. Official literature on the subject is rather sparse and competitors were largely thrown on their own resources. One fault which is almost general is extravagance in planning; not enough is made of interchangeable use of rooms. No centre is likely, for many years yet, to be able to set aside, as one competitor has done, a large room entirely for "make do and mend"; nor, may it be hoped, will it indefinitely require to, though this is more in doubt.

Many competitors have tied themselves in knots trying to solve in an economically and socially balanced manner the problem of giving the various age groups and the different sexes a "fair do"; this problem is, indeed, not theirs alone, but has faced every designer of the community building. From the administrative and, possibly, the cost points of view the idea of solving the problems of indoor social and communal recreation under one roof makes its appeal. This competition only reinforces the view we have long held that the problem wants thinking out afresh and that the needs of people regarded as individuals rather than units should receive proper attention. It is, no doubt, more costly to help individual organisations to achieve individuality but this might be taken, at least in urban cases, as the starting point of an investigation rather than the belief (which many hold to be false) that there is some particular virtue in herding both sexes and all age groups in one building. Our remarks are not to be taken as reflecting on the many excellent attempts which were made by entrants for this competition, in the running of which the Incorporated Association of Architects and Surveyors has performed a most useful service.

Origin of the Crystal Palace.

TALKING OF EXHIBITIONS (as does a leader on the facing page), we have often wondered whether Paxton sensed the historic significance of what he was doing when he designed the Crystal Palace and so established the revolutionary principles of unit construction, prefabrication, mass production and demountability. The facts are extraordinary, to say the least, for it was only at the last moment, after 233 designs for the exhibition building had been rejected, that Paxton agreed to submit a design, which he produced in the remarkably short period of nine days. It is true that he had already designed a 300 ft. long conservatory at Chatsworth for the Duke of Devonshire, for whose Derbyshire estates he was manager, but this did not differ greatly from other contemporary glasshouses of great size. The Palace was a new and daring conception. How is it explained? Mr. James Marston Fitch has suggested that the germ idea is to be found in the famous water lily, *Victoria Regia*, which Paxton had brought to flower for the first time in Europe in 1849. "This remarkable plant," he writes, "had pads which measured eight, ten, even twelve feet in diameter; constructions strong enough to support a boy yet light enough to float. They were marvels of economy—a network of radiating and circumferential ribs which supported and were in turn stiffened by the thin, tough membrane of the leaf itself. The parallel between this design and the structural system of the Crystal Palace is inescapable. Cast iron and glass replace rib and membrane—though the materials necessarily differ, the principle is the same."

It is significant that Paxton's building work both before and after the Palace was comparatively commonplace. Theory, material and technique happened to be in exact equilibrium at a precise moment in history for a "leap forward" in structural design; but if Paxton had not been a botanist and horticulturist of genius, as well as an imaginative constructor, would that "leap" then have been taken? Probably not.

Preservation of Cathedrals.

THE CENTRAL COUNCIL for the Care of Churches announces the formation of a cathedrals' advisory committee for guidance when questions involving the preservation or enrichment of cathedral churches arise.

The chairman of the committee is the Very Rev. D. H. S. Cranage, D.Litt., F.S.A., Hon. A.R.I.B.A., chairman of the Central Council. The members are Lord Esher, chairman of the Society for the Protection of Ancient Buildings; Sir Eric Maclagan, D.Litt., LL.D., F.S.A., late director of the Victoria and Albert Museum; Mr. T. D. Kendrick, D.Litt., F.B.A., Hon. A.R.I.B.A., director-designate of the British Museum, and secretary of the Society of Antiquaries of London; Mr. W. H. Ansell, M.C., past president of the Royal Institute of British Architects; Mr. W. I. Croome; and Mr. F. J. Raby, Litt.D., F.B.A., F.S.A., Fellow of Jesus College, Cambridge, late of the Ancient Monuments Division, Ministry of Works.

Agreement to form a committee was reached last summer at a meeting of deans and provosts of English cathedrals on a suggestion from the Central Council.

As the cathedrals are not subject to faculty jurisdiction they have not hitherto been concerned with this system.

Rome Scholarship, 1950.

THE FACULTY OF ARCHITECTURE of the British School at Rome announce that the following candidates have been admitted to the final stage of the competition for the Rome Scholarship in Architecture of 1950: R. K. H. Johnson, B.Arch; D. Le M. Brock, B.Arch.; D. Robinson, B.Arch.; H. N. Mason, B.Arch., A.R.I.B.A.; and C. H. Barnett, B.Arch., A.R.I.B.A.—all of the Liverpool School of Architecture. B. G. Cobb; D. A. Cobb; D. G. Fenter, B.A.; and T. A. Markus, B.A., A.R.I.B.A.—all of the Manchester School of Architecture. E. Carter and A. R. Irving—both of the Durham School of Architecture; and W. F. Howitt, A.R.I.B.A.—of the Dundee School of Architecture.

The Rome Scholarship is at present of the value of £375 a year and is ordinarily tenable for two years at the British School at Rome. It is provided by a grant from the Royal Institute of British Architects.

M.o.W. Appointments.

THE RT. HON. R. R. STOKES, M.C., M.P., Minister of Works, has made the following appointments:—Mr. H. G. McGhee, M.P., to be his Parliamentary Private Secretary; Mr. P. H. Cooper to be his Private Secretary; and Mr. K. P. Leary to be his Assistant Private Secretary.

The Rt. Hon. Lord Morrison, Parliamentary Secretary to the Ministry, has appointed Mr. E. Vickers to be his Private Secretary in place of Mr. G. M. Patrick, who has been promoted.

American Building Expert's Visit.

WHILE visiting this country as part of a short European tour, Mr. Robert Gerholz, President of the National Estate Boards of the U.S.A., will be entertained at dinner on Monday, March 27, at the Hungaria Restaurant Banqueting Room by members of the Building Industries Luncheon Club. Mr. Gerholz will be accompanied by his Vice-President, Mr. Herbert U. Nelson. In order that members of the industry who are not members of the club may join the party to welcome Mr. Gerholz, the club is reserving a limited number of tickets at 22s. 6d. each for this purpose. Those desiring tickets should make early application for them and send cheque with order to the Hon. Secretary, Building Industries Luncheon Club, 4, Manchester-square, London, W.1.

THE VOORTREKKER MONUMENT. Seen above is the Voortrekker Monument, Fretoria, which was opened on December 16 last in the presence of nearly 250,000. It is a memorial to the Voortrekkers of 1838 who travelled in their ox waggons from the Cape to establish themselves in the northern territories which now form part of the Union of South Africa. Faced in granite, the monument is 120 ft. square on plan, and is visible on clear days from 60 miles away. The interior comprises a great hall with a double-domed roof and large windows in tinted glass, below which is a marble frieze in bas-relief depicting the history of the Great Trek. There is a sarcophagus containing the remains of the Voortrekker leaders. In the valley is a large amphitheatre dug from the side of a hill, seating 30,000, in the forefront of which is a concrete stage for various ceremonies. The excavations for the amphitheatre and the work of terracing and seating were carried out by John Laing and Son (S.A.) Pty., Ltd., of Johannesburg.

Coventry Cathedral.

THE BISHOP OF COVENTRY (Dr. Neville Gordon) has stated that it has not yet been decided whether the competition for the design of the new Coventry Cathedral will be confined exclusively to British and Dominion architects, or extended to international competitors. The view is held by many, he said, that some of the best developments of modern architecture were to be found in France and Italy.

There were hopes that in France, where the great tradition of English medieval architecture had its origin, might be found an architect of genius "who had a feeling of Gothic, and who yet might create something entirely new belonging to a new age."

Glasgow Architectural Prize.

THE Glasgow Institute of Architects' Alexander Thomson Travelling Studentship has been won by Mr. Peter L. A. Williams, who has completed his Diploma Course at Glasgow School of Architecture, and who is now studying town planning at the Royal Technical College, Glasgow. The studentship serves as a memorial to Alexander "Greek" Thomson. The drawings submitted for the competition are now on show in the Scottish Building Centre, 425-7, Sauchiehall-street, Glasgow.

Professional Announcement.

MR. ROBERT W. PITE informs us that he has retired from the firm of Messrs. Pite, Son and Fairweather, and is practising at 30, Craven-street, Strand, W.C.2. Tel.: Whitehall 3556.

COMING EVENTS

Monday, March 20.

ROYAL SOCIETY OF ARTS.—First of three lectures on "The Manufacture, Properties and Applications of Aluminium and its Alloys," by Dr. Colin J. Smithells, D.Sc. R.S.A., John Adam-street, Adelphi, W.C.2. 6 p.m. Remaining lectures will take place on March 27 and April 3.

Tuesday, March 21.

ARCHITECTS' BENEVOLENT SOCIETY.—A meeting to confirm the alterations to Bye-law 1, as already circulated. R.I.B.A., 66, Portland-place, W.1. 2 p.m.

BUILDERS' BENEVOLENT INSTITUTION.—90th Annual Dinner. Sir Godfrey Mitchell in the chair. Grosvenor House, W.1. 7 p.m.

INSTITUTION OF SANITARY ENGINEERS.—"The Maintenance and Operation of Large Sewers." by Mr. K. W. Shortt, M.I.C.E., Caxton Hall, Westminster. 6 p.m.

Wednesday, March 22.

ARCHITECTURAL ASSOCIATION.—"The Great Exhibition of 1851," by Mr. C. H. Gibbs-Smith, M.A., F.R.S.A. A.A., 36, Bedford-square, W.C.1. 8 p.m.

TOWN AND COUNTRY PLANNING ASSOCIATION.—"The New Hemel Hempstead Plan," by Mr. B. G. H. Brooke-Taylor, public relations officer, Hemel Hempstead Development Corporation, 28, King-street, London, W.C.2. 6.15 p.m.

TIMBER TRADE FEDERATION.—Annual Dinner at which Mr. Byron I. Johnson, Premier of British Columbia will be the chief guest. Grosvenor House, Park-lane, W.1. 7 p.m.

L.M.B.A. (SOUTH-WESTERN AREA).—A meeting at which the speaker will be Dr. W. P. K. Findlay, Head of the Entomology Department, Forest Products Research Laboratory, D.S.I.R. Zeeta's Restaurant, Kingston-on-Thames. 2 p.m.

Thursday, March 23.

SOCIETY OF CULTURAL RELATIONS WITH THE U.S.S.R.—A discussion on "Post-war Housing Design and the Public." Architectural Association, 34, Bedford-square, London, W.C.1. 6.30 p.m.

Friday, March 24.

SHREWSBURY TECHNICAL COLLEGE AND M.O.W.—Opening of an exhibition on building, by Viscount Bridgeman, C.B., D.S.O., M.C. Technical College, Abbey Foregate, Shrewsbury. 2.30 p.m. Continuing until March 31.

FROM "THE BUILDER" OF 1850

Saturday, March 16, 1850.

NEW HOUSE OF COMMONS: The sum required for the completion of such portions of the new House of Commons as are necessary for the convenient transaction of business is estimated by Mr. Barry, in a statement recently issued, at 102,180*l*.

ENGLISH WATER MILLS

By JOHN HILLIER

(With Drawings by the Author.)

ALTHOUGH power for grinding corn is still supplied by only a few water-wheels, methods of construction of water-mills are, nevertheless, of some interest: few of these structures are likely to be built in the future, and the number that remains is fast diminishing, and has been diminishing at an ever-increasing rate during the last 50 years.

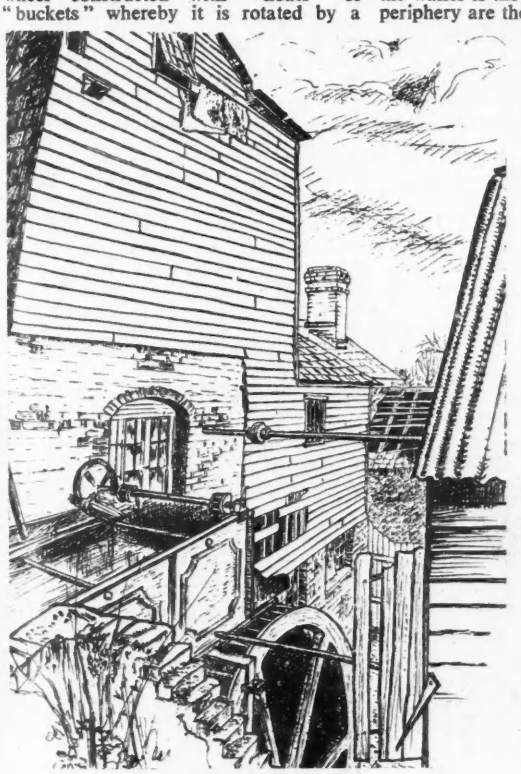
There is nothing in water-mill architecture generally to compel popular attention as in the cases of hill-top post- or smock-mills, but the water-mill can invariably be distinguished from the ruck of domestic buildings in a locality, and nobody can deny there is a greater variety of treatment in its construction than is possible with, or required by, the windmill.

Any mill building, however powered, is, of course, largely functional: its design, the strength of its walls and even the materials of which it is built, are to a great extent determined by the processes to be carried on within. To appreciate, therefore, the diversity of water-mill buildings, it is necessary to know something of what was in the designers' minds, and this requires some explanation of the fundamentals of milling by water power.

The majority of mills were designed for corn milling, but, in the main, the principles governing constructional work apply equally to mills connected with the iron, wool and other trades, modifications being imposed only by each industry's special requirements: in fact, an iron mill was often converted to flour milling, and a corn mill to wool.

The motive power is provided by a wheel constructed with "floats" or "buckets" whereby it is rotated by a flow of water. On the same horizontal axle as the wheel is the first gear-wheel of the mill, called, from its position, the "pit-wheel." The pit-wheel is a cog-wheel that engages another smaller wheel (the "waller") fixed like a collar round a massive central shaft which revolves on pivots, the lower in the pit or basement floor, the upper, two or perhaps three floors above. On this central revolving shaft are fixed large cogged wheels whence is derived the motive power for the stones and for all other processes in the mill. Immediately above the waller is the spur-wheel, about whose periphery are the stone-nuts, pinions each turning a spindle pivoting on a base called the bridge-tree and carrying at the upper end the runner grindstone. This is rotated above the bedstone, fixed or embedded in the floor above. The number of stone-nuts and hence pairs of stones is limited by the power developed by the wheel, and ranges normally from two to five pairs.

High Mill, Farnham.



Coltsford Mill, Oxted.

On the floor above the "stone-floor" there is invariably a "crown-wheel" revolving on the central shaft by means of which ancillary machines for cleaning, bolting and the like are powered.

In the earlier mills the "hursting," or frame forming the supports for the stones, the central shaft and the cog-wheels, were all of the heaviest timber, and although from the end of the eighteenth century cast-iron began to supplant and finally ousted altogether the timber used in the millwright's work, the great weight of the miller's plant was a factor the builder had to contend with.

But the primary factor in all water-mill siting and designing was the water flow and its utilisation. The sources of the water were varied. First used, perhaps, was the natural stream or river without damming, the mill straddling the stream on arches through which the water coursed, the water-wheel being placed in one of the arches, and the water diverted from it when necessary by dropping a sluice-gate across the opening. On various shallow streams with only a slight fall from source to mouth, this type persisted for centuries, and indeed is one of the most attractive forms of the water-mill. High Mill, on the Wey near Farnham, some 250 years old, represents this type to perfection. The ground floor is divided into bays by brick partitions, and one bay so formed is supported over the river on brick arches. These arches are of unequal width, the one in which the wheel is stationed being equal to the other two together. All three run the whole width of the building and continue under the bridge carrying the road alongside the mill.

The mill built alongside pond or leat, with the wheel external at one side, is perhaps the most typical water-mill to most people and is depicted in several old manuscripts and engravings.

From the comparatively few remaining mill buildings one obtains an impression of great variety and inventiveness. Whatever materials for the rest of the building, the lower storey, at the wheel-well level, had to be of solid stone or brick construction, and this was usually carried up to the second floor. From the pond, the water is as a rule directed over the water-wheel *via* an overshoot trough, the mill building often being well below the level of the embankment, thus imposing a number of problems of damp- and flood-resistance. The problems were met, in general, by increasing the thickness of the walls at the base, giving some mills, especially where rough, uncoursed stone has been used, the rugged solidity of a castle keep.

Above the pit- and ground-floors a large number of mills are of weather-boarding on a timber frame and long after timber-

Willey Mill.

framing had ceased to be the rule where dwellings were concerned it continued to hold sway with the mill-builders, whose grafting of the timber frame to the stone base often provides interesting constructional details. Weather-boarding was the more usual covering for the walls, though here and there are examples of lath-and-plaster filling of the panels and brick-studding. There are, too, many fine buildings entirely of brick (Thursley) or brick tile-hung (Shalford Mill), brick with stone facings or stone with brick-facings—in fact, the changes on brick, stone, tile and timber are rung with the countless variations of locality and period.

The typical mill is normally of at least three and often four floors in height: the ground- or pit-floor; the stone-floor; the second, usually a "processes" floor; and finally the corn-loft. The roof is often the mill's most interesting feature. The curb or mansard roof was used to a large extent, presumably because of the additional height this type of roof gives to the loft, always the miller's chief storage place. The roof-timbers never being under-drawn, the lofts frequently present an object lesson in carpentry.

The miller's dwelling often adjoins the mill itself and, with its tall chimneys, richly-toned weather-tiles and timber canopy to the porch, gives an air of domesticity to the mill group. Willey Mill and Thursley Mill are good examples. No dark satanic mills these: the miller went straight from the rooms he lived in to those he worked in, and the clean, nutty smell of grain permeated the parlour as it did the stone floors of the mill.

Shalford Mill.

CORRESPONDENCE

The Weight of Timber

To the Editor of *The Builder*.

SIR,—Although I agree with much of Mr. Dwiar's letter on the registration of surveyors, his statement regarding an examination question on the weight of oak and method of distinguishing between oak and ash by visual examination makes me wonder if you will allow me to add a reminiscence to his sequel.

When I was serving my apprenticeship to carpentry and joinery, two joiners (one with about 35 and the other 40 years' experience) had a long argument as to whether a piece of "old oak" was really oak or chestnut. One of their tests was the weight of the timber.

The moral of this story is that perhaps a knowledge of the respective weights of different timbers isn't such a bad thing.

A.R.I.C.S.

Building Dwellings Without Timber

To the Editor of *The Builder*.

SIR,—Why cannot the authorities issue building licences to private persons who wish to build dwellings for self-occupation using a minimum of imported softwood? Bungalows could be constructed with concrete roofs and floors, so that no roof timber would be needed. There are plenty of concrete reinforcement bars waiting for buyers, and bricks, lime and cement are available, as well as hundreds of good second-hand baths and other hardware items. Iron casement windows are plentiful, and so is copper piping for water installation. The only material a bit scarce is ½-in. lead piping for the water supply. Tiles and drain pipes are available by the thousand, so I cannot see why licences for dwellings of this kind cannot be issued.

BUILDER.

Southport, Lancs.

"Price Build-up To-day": Allowance for Insurance

To the Editor of *The Builder*.

SIR,—We have read with interest the article on "Price Build-up To-day" in your issue of February 10. As the figures stand it would seem that they could be misleading as the writer of the article has merely included in his build-up one item of insurance under the heading of Common Law Insurance. This we take to refer to an employer's liability to his workpeople at common law. Assuming we are correct, there seems to be no provision made for insurance of risks of personal injury and property belonging to third parties, nor does there seem to be any provision for fire insurance, the responsibility for which seems to be laid upon the contractor by virtue of the standard form of contract.

Your comments would be of interest.

M. THOMSON,
Secretary, The Builders' Accident Insurance, Ltd.

31-32, Bedford-street, W.C.2.

∴ We have shown this letter to "Cain" (Mr. V. C. Abell), who writes drawing attention to the following extract from page 5, "Price Build-up To-day" (consolidated edition):

"(*a*) Tariff Insurance Companies have been zealous in pointing out to employers that claims under Common Law are not covered by the National Insurance Act. The rates quoted to cover this emergency are 4s. 6d. per cent. on wages for the erection of buildings not exceeding two storeys, and 8s. 3d. per cent. on wages for general building work. As these analyses refer to traditional type houses only, and the houses seldom exceed two storeys, the 4s. 6d. rate applies."

COMPETITION NEWS

New Civic Buildings, Nairobi

THE Municipal Council of Nairobi, Kenya, invite architects in the United Kingdom and all British dominions, colonies and dependencies, to submit designs in competition for the new City Hall group of buildings proposed to be erected on a site adjacent to the present Town Hall. Professor L. W. Thornton White, F.R.I.B.A., has been appointed assessor and the promoters have also appointed the Town Engineer (Mr. H. R. Bridger, O.B.E., A.M.I.C.E., M.I.Mun.E.) and the Town Planning Adviser to the Kenya Government (Mr. H. Thornley Dyer, F.R.I.B.A., A.M.T.P.I.) to act as their representatives, to confer with the assessor during the course of the competition. Premiums of £550, £450 and £250 are offered.

Conditions, etc., are obtainable on deposit of £2 2s. from the Town Clerk, Town Hall, Nairobi, Kenya, to whom questions should be addressed by air mail to arrive on or before April 20 next.

Completed designs should be sent to the Town Clerk, Nairobi, to arrive not later than August 31 next.

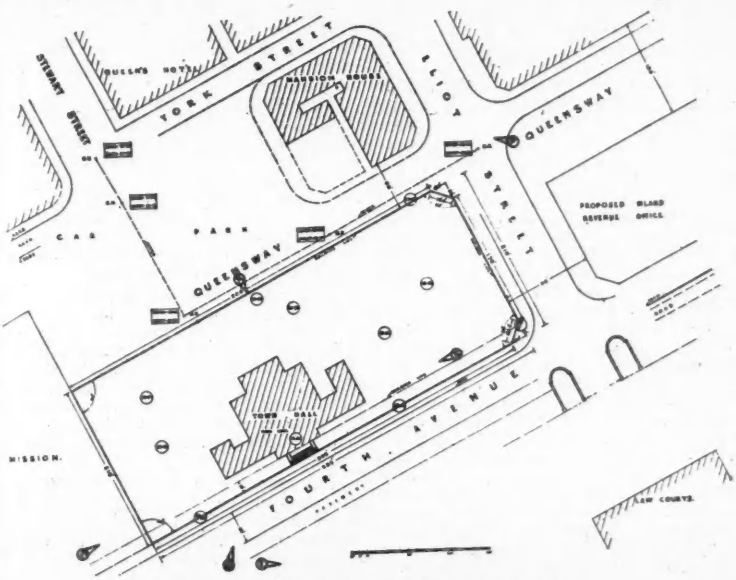
Following are extracts from the general instructions:—

The site itself is almost level and the maximum height of building allowed by the town planning restrictions is 60 ft. to eaves or bottom of parapet, but an architectural feature of reasonably restricted area would be allowed above that height. The majority of important buildings in Nairobi are constructed with reinforced concrete frames and floors, with concrete block or rough stone block infilling. No fireplaces or other heating devices are necessary in these buildings.

The accommodation generally divides itself into five main groups: (a) A banquet hall and its ancillary rooms; (b) an assembly hall, to be used at certain times as a Legislative Council Chamber; (c) a magistrate's court; (d) offices for certain municipal departments; and (e) offices for the use of the Legislative Council, temporarily, and available ultimately as municipal offices.

The banqueting hall should be capable of seating 500 persons at formal banquets and should be suitable for dances and be provided with stage and musicians' gallery. A kitchen, stores and servery should also be included. The magistrate's court should comprise courtroom, entrance hall and waiting space, magistrate's room, etc. The assembly hall, the primary use of which is for public meetings, must seat 750 persons. Small theatrical performances and concerts will take place occasionally, but all the seating on the main floor must be movable and the floor level to allow the room to be converted for use by the Kenya Legislative Council.

** A copy of the general instructions and conditions, together with site plans and photographs, may be seen at the offices of *The Builder*.



NEW CIVIC BUILDINGS, NAIROBI. The site plan.

Australian War Memorial, Strand, London

THE Australian Battlefields Memorial Committee invite entry by British sculptors, artists, architects and designers, in a competition for the design of an Australian war memorial to be erected near Australia House, Strand, London, to commemorate all Australian Fighting Services and the Merchant Navy in the Second World War.

Prizes of £250, £150 and £50 (Australian) will be awarded for the designs judged respectively first, second and third by a panel of five Australian art experts in consultation with a Designs Committee, subject to approval by the Australian Cabinet.

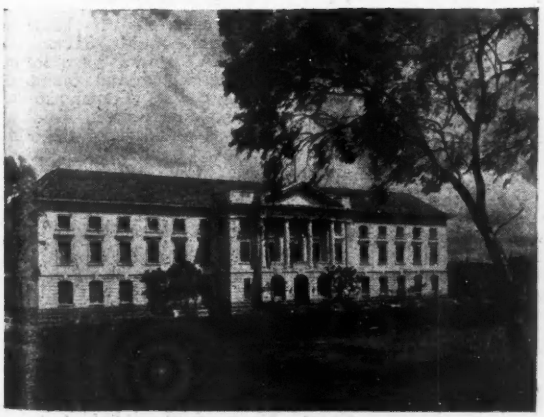
Intending competitors must be British citizens and should register their names with the Secretary, Australian Battlefields Memorial Committee, 434, Collins-street, Melbourne, Victoria, Australia, before noon, April 1 next. Registration is not compulsory but secures certain advantages as set out in the conditions of the competition and failure to register will not disqualify entry to the competition, which will close on September 1 next. Full details of the competition can be obtained on application to the Official Secretary, Commonwealth of Australia, Room 115, Australia House, Strand, London, W.C.2.

COMPETITIONS OPEN

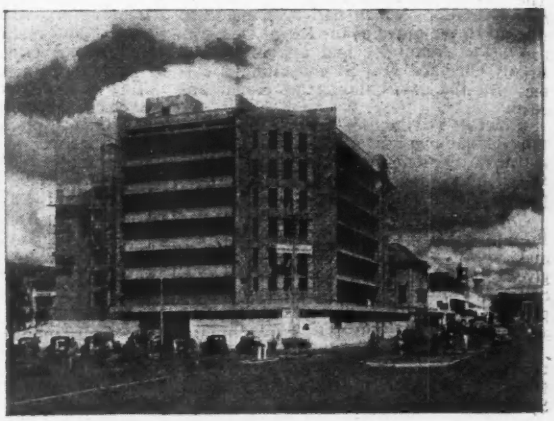
HEALTH CENTRE, MANCHESTER. Promoted by Provincial Exhibitions, Ltd. Premiums: £100, £60 and £40. Assessors: Messrs. F. Leslie Halliday, F.R.I.B.A.; Leonard C. Howitt, B.Arch.; and Dr. C. Metcalfe Brown, M.D. (Medical Officer of Health, Manchester). Conditions from the promoters, City Hall, Deansgate, Manchester. Closing date: March 27, 1950. *February* 17, 1950.

WAR MEMORIAL BUILDINGS, JERSEY, C.I. Promoted by Association of Old Victorians. Premiums: £75, £50 and £25. Assessor: Mr. A. E. O. Geens, F.R.I.B.A. Conditions from Mr. A. H. Worrall, 25, Cleveland-road, Jersey, C.I. Dep. £1. Closing date: April 3, 1950. *October* 28, 1949.

Dates in italics at the end of paragraphs refer to issues of "The Builder" in which details of the competitions appeared.



The Town Hall from point D on the site plan.



Mansion House offices from point F on the site plan.

R.I.B.A.

Notes from the Minutes

FOLLOWING are notes from the minutes of the R.I.B.A. Council meeting held on February 7:—

The Honorary Fellowship.—The Secretary reported that Sir Gerald Kelly, President of the Royal Academy, had accepted the Council's nomination for election as an Honorary Fellow.

Architects Registration Council.—(a) Under the provisions of the Architects (Registration) Act, 1931, the Institute is entitled to nominate 20 members to serve on the Architects' Registration Council for the year ending March, 1951. The following members were appointed:—Harold Anderson (F.), Arthur Bailey (F.), Martin S. Briggs (F.), A. C. Bunch (F.), Anthony Chitty (F.), H. Conolly (F.), Romilly B. Craze (F.), Kenneth M. B. Cross (F.), P. K. Hanton (F.), J. E. K. Harrison (F.), L. C. Howitt (F.), Cecil Kennard (F.), A. B. Knapp-Fisher (F.), E. D. Jefferiss Mathews (F.), S. W. Milburn (F.), Denis Poulton (F.), A. L. Roberts (F.), V. H. Seymer (F.), H. G. C. Spencely (F.), and Sydney Tatchell (F.). (b) Under the same statute the Institute is entitled to nominate four members to serve on the Admission Committee of the Council for the year ending March, 1951.

The following members were appointed: L. A. Chackett (F.), C. J. Epril (F.), Denis Poulton (F.), and G. F. Whitby (A.).

Building and Civil Engineering Regional Joint Production Committees.—On the invitation of the Ministry of Works the Council have appointed an R.I.B.A. representative to serve on the Joint Production Committee for each of the 11 administrative regions into which England and Wales are divided. The following members have been appointed: Northern—Lt.-Col. A. K. Tasker (F.); E. and W. Ridings—Norval R. Paxton (F.); N. Midlands—C. F. W. Hazeldine (F.); Eastern—Peter Bicknell (F.); London—Richard H. Sheppard (F.); Southern—T. L. J. Chamberlain (F.); S. Western—J. Ralph Edwards (F.); Wales—Edwin Smith (F.); Midlands—S. J. Stainton* (F.); N. Western—J. S. Beaumont (F.); and S. Eastern—Cecil Burns (F.).

Direct Election to the Fellowship.—Mr. Jack Denyer Cheesman, F.R.A.I.A., President of the Royal Australian Institute of Architects, was elected by a unanimous vote to the Fellowship under the provisions of the Supplemental Charter of 1925, Section IV, Clause 4.

Royal Observatory, Hurstmonceaux.—The Secretary reported that, following representations which had been made in regard to the move of the Royal Observatory, the Admiralty had appointed Mr. Brian O'Rorke (F.) as consulting architect for the new buildings at Hurstmonceaux.

R.I.B.A. Diploma in Town Planning.—The Council approved the award of the R.I.B.A. Diploma in Town Planning to Mr. Robert G. Turnbull (A.) and to Mr. Leslie Vivian Mitchell (A.).

Christmas Holiday Lectures.—The President referred to the series of Christmas Holiday Lectures for boys and girls given by Mr. R. E. Enthoven (F.), which had been most successful; and on his proposition a hearty vote of thanks was accorded to Mr. Enthoven.

Bequest to the Institute.—The Secretary stated that under the will of the late Mrs. M. D. Spooner, widow of Charles Sydney Spooner (F.), the sum of £100 had been left to the Institute for the purchase of books in memory of her husband.

Copyright in Architectural Drawings: Model Form of Conditions for Architectural Competitions.—On the recommendation of the Competitions Committee the Council approved an amendment to Clause 17 of the Model Form of Conditions for Architectural Competitions in order to bring that clause into line with Clause 1(f) of the Scale of Professional Charges. Clause 17 will therefore in future read as follows:—

"Copyright in all drawings and in the work executed from them will remain the property of the architect. The architect shall, if requested to do so, at the completion of the work, supply free of charge to the client drawings sufficient to show the main lines of drainage and other essential services."

Proposed Unesco Publications of School Buildings.—As recommended by the Committee on School Design and Construction, the Council approved a suggestion put forward by the Education Department of Unesco that the Institute should collaborate in the preparation of reference works on School Buildings in consultation with the Ministry of Education for the use of backward countries.

* Subsequent to this appointment, Mr. Stainton's death has unfortunately taken place.—ED.

R.I.C.S.

The Annual Dinner

THE view that the Rent Restriction Acts were in urgent need of attention and reform was expressed by MR. JOHN WATSON, President of the Royal Institution of Chartered Surveyors, at the annual dinner of the Institution at Grosvenor House on March 14.

Mr. Watson, who was responding to the toast of "The R.I.C.S.," proposed by the Lord Chancellor, Lord Jowitt, said he raised the matter not in the interests of the profession, but solely for the public good, and went on to refer to the Rent Restriction Acts as "that complex, inconsistent, unco-ordinated, inequitable and, to a large extent, incomprehensible hotch-potch of legislation."

Mr. Watson continued: "Adequate housing is the nation's paramount need, and the grievous lack of it the greatest social evil with which we are faced. But good housing implies more than wise planning and sound materials: it demands in addition enlightened and conscientious ownership. I assert that under existing conditions, with restricted pre-war rents and repairs costing between two and three times what they did in 1939, there are types of property where it is virtually impossible for the most conscientious private landlord to do his job properly and make two ends meet. The result is not only that a great number of houses are increasingly and inevitably falling into disrepair. There are even graver consequences: I will only mention one. Great private landlords in the country, as well as in the towns and great public corporations, are finding themselves compelled, in the face of this anomaly, to divest themselves of this class of property. And who buys it? Who buys the kind of property which the conscientious owner cannot afford to maintain? Too often, it falls into the hands of the small greedy speculator. Indifferent to his tenants' welfare, unmoved by their complaints, undeterred by repeated notices from an overworked sanitary authority, his purpose is to hold the property merely for a matter of months; to sweat it for such small gain as it may show him; and then to re-sell, at a narrow profit and in smaller lots, to others of the same kidney.

"It has been said already, on behalf of the new Government, that there is no prospect of early legislation upon this subject. Yet here is a growing evil, urgently in need of remedy."

LORD JOWITT, in proposing the toast, referred to Mr. Watson as the youngest President ever of the R.I.C.S., "who, indeed, was also, in the field of juvenile delinquency, almost without parallel."

The Lord Chancellor, continuing in light vein, said he gathered the Institution had been going for 80 years, and that its members had been having a very busy time lately. "You ought to thank me for that," he added, "and why you have not elected me an Associate Member I do not know. I gather you have been dealing with claims under Part VI of the Town and Country Planning Act—a very admirable Act, as you will agree; anyway, it has given you a lot of work. However, I would like to express my deep sense of appreciation to members of the Royal Institution of Chartered Surveyors for what they have done to assist us in the complicated questions relating to land."

The toast of "Our Guests" was proposed by MR. H. P. HOBBS, senior Vice-president of the R.I.C.S., who extended a special welcome to Lt.-Col. Marcel Baudet, President of the Fedération Internationale des Géomêtres, who had travelled all the way from Switzerland for the occasion.

In reply, the RT. HON. LORD WOOLTON, P.C., C.H., who was greeted with prolonged applause, commented upon the fact that the R.I.C.S. had 6,000 candidates for examination this year, and said that surely the great danger of the age today, and he associated this with those 6,000 candidates, as well as those of other societies, was that we were going to burden Society with too much expertise.

"I believe one of the dangers we are suffering from now is that we are being timorous . . . and so, more and more, we are tending to guard society by more and more regulations. I very much wonder whether those of us who, as legislators, seek to control the actions of men, have the wisdom and the understanding and long sight for the tasks that we are undertaking."

With reference to housing, Lord Woolton said that it was a problem that would need all the professional competence we could command, and one which the nation must solve.

OBITUARY

Samuel J. Stainton, F.R.I.B.A.

The death has occurred at his home at Olton, Birmingham, of Mr. Samuel J. Stainton, F.R.I.B.A. He was a partner in the firm of Cherrington and Stainton, architects and surveyors, Edmund-street, Birmingham, and Priory-street, Dudley. Mr. Stainton was president of the Birmingham and Five Counties Architectural Association in 1947-1948. He was elected a Fellow of the R.I.B.A. in 1925.

Sir Ralph Freeman, M.Inst.C.E.

We regret to record the death, on March 11, of Sir Ralph Freeman, M.Inst.C.E., M.Am.Soc.C.E., F.C.G.I., at the age of 69. He was the senior partner of Freeman Fox and Partners, consulting engineers, 68, Victoria-street, S.W.1. His firm are the consulting engineers for the 1951 Festival of Britain and also acted in a similar capacity in the Great Exhibition of 1851. He was the consulting engineer for the Sydney Harbour bridge and for three bridges in Rhodesia.

NEW WORKSHOPS AND SITE DEVELOPMENT,

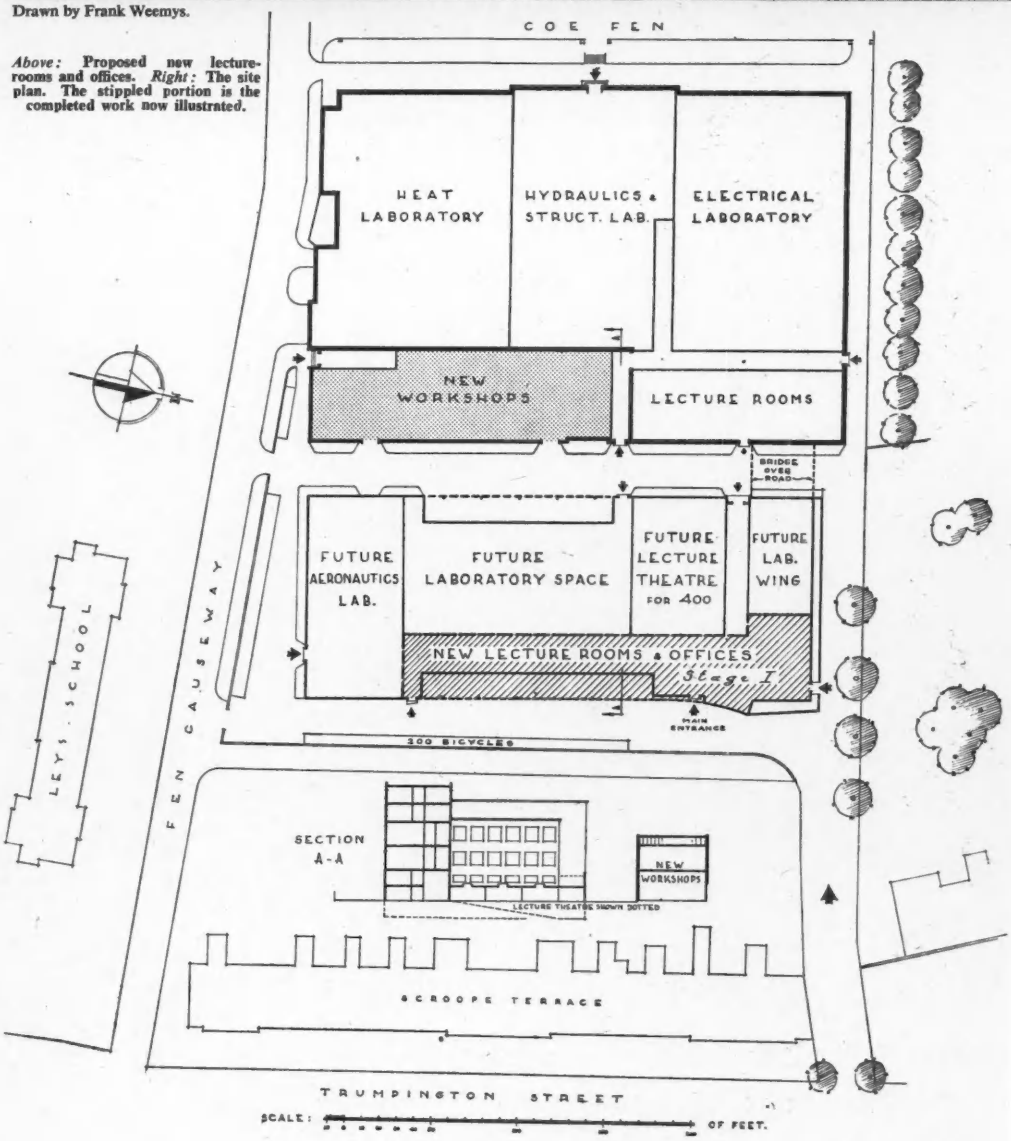
DEPARTMENT OF ENGINEERING, UNIVERSITY OF CAMBRIDGE

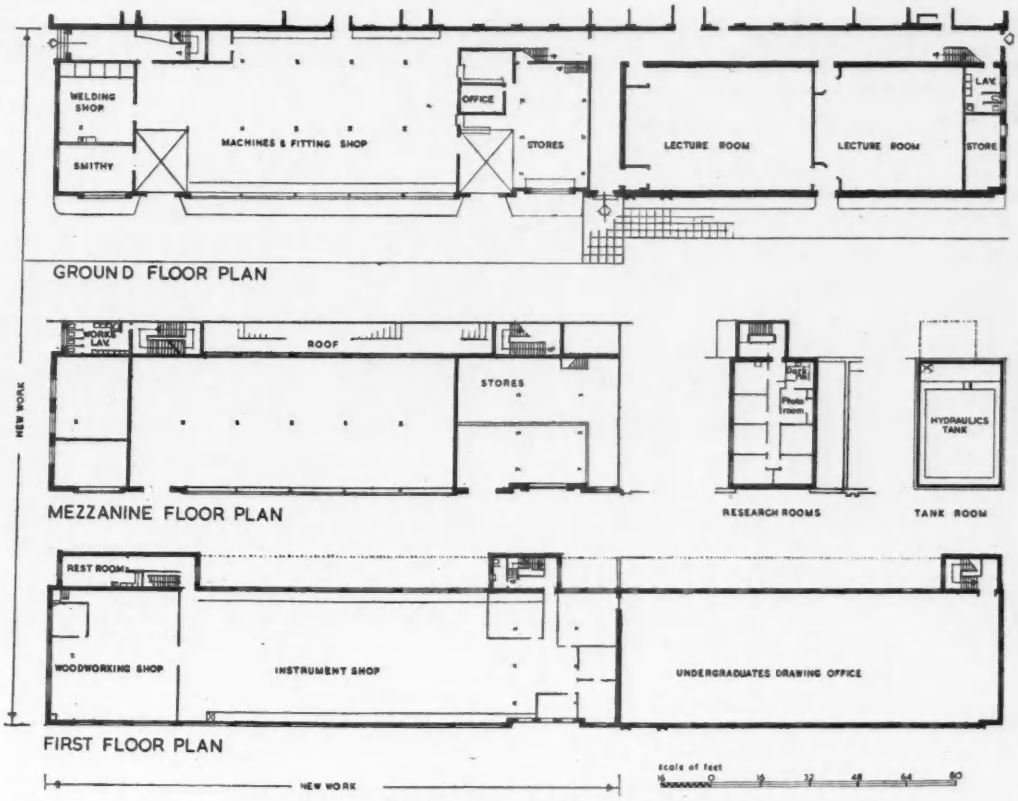
EASTON AND ROBERTSON, A.R.A., FF.R.I.B.A., ARCHITECTS

G

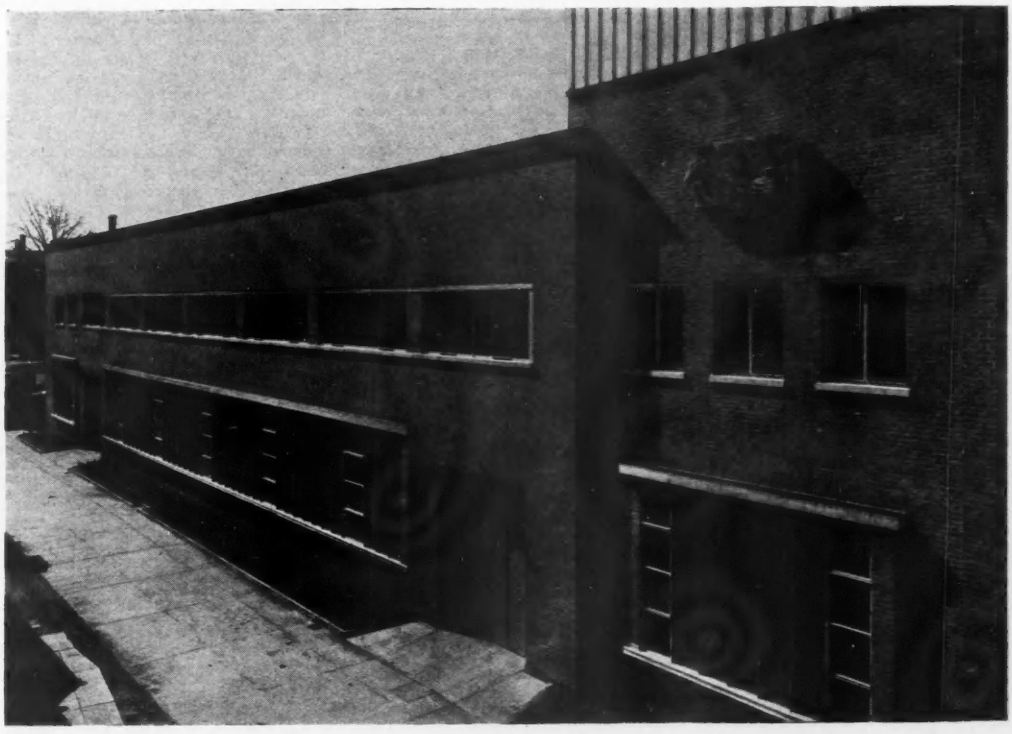
Drawn by Frank Weemys.

Above: Proposed new lecture-rooms and offices. *Right:* The site plan. The stippled portion is the completed work now illustrated.





The plans of the new workshops.



The workshops from the north-east.

NEW WORKSHOPS, DEPARTMENT OF ENGINEERING, CAMBRIDGE UNIVERSITY

EASTON AND ROBERTSON, A.R.A., FF.R.I.B.A., ARCHITECTS

Decorative sculpture on the east wall by Siegfried Charoux, A.R.A.

THE architects' problem here was the familiar one of making the best use of a restricted site.

THE NEW LABORATORIES.—These are to be put up in stages. The first part, for which foundations are now going in, contains the teaching and research staff offices and laboratories, lecture rooms and common rooms and a central boiler house. This will be the Faculty building of one of the University's largest departments; as engineering science develops, new curricula may require big changes in the initial layout of the building, which has been designed accordingly.

THE NEW WORKSHOPS.—These are on two floors, and contain heavy and light machine tools. A welding shop and a small smithy are also provided. The main stores for raw material and tools has its own entrance at the north end of the building. On the upper floor light machine tools occupy the instrument shop, with a carpenter's shop at the south end and workshop offices at the north. Two staircases in the form of annexes between the new main block and the old laboratories give separate access for workers and students and office staff at the south and north ends respectively. Use has been made of the height of the ground floor (17 ft. 6 in.) to fit a workers' lavatory and additional storage space on the mezzanine level. Clerestorey lighting is provided over the low link with the old laboratories.

The tower houses a large experimental tank, under which an additional floor has been used for research workers' offices and photographic rooms.

CONSTRUCTION.—Foundations are pressure piles to an average depth of 24 feet, with reinforced concrete ground beams cast integrally with the pile caps to carry the walls. The steel frame is uncased to allow for miscellaneous fixings that may be subsequently required. The floors are solid reinforced concrete cast *in situ*, the ground floor being in the form of a reinforced raft resting on the ground itself. External walls are 13½ in. brickwork, faced with a hand-made sand-faced brick and backed with flettons; internal walls are of fletton brickwork. North light roofs are covered with metal decking on the unglazed slopes. Flat roofs are asphalt on concrete. The patent glazing is in aluminium bars, and the walls of the tank casing are in aluminium corrugated sheets bolted to the steel frame-work.

The materials used externally are precast concrete cills to the windows, painted with Snowcem. The heads have a concrete nib supporting the brickwork above which is integral with the beam casing behind. Windows are steel, painted, with opening panels vertically centre hung. The jambs to doors, the steps, and the coping are in reconstructed stone. Entrance doors are in English oak.

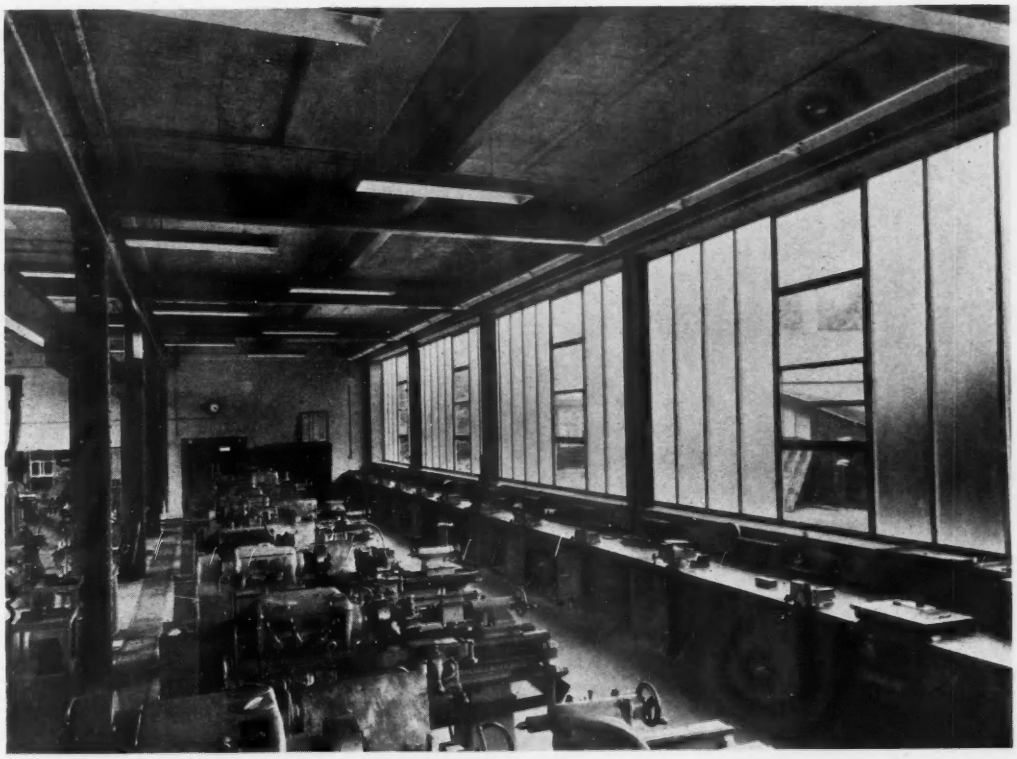
INTERNAL FINISHES.—Walls generally are fair-faced brickwork, distempered buff, the exposed steel being painted a contrasting olive green. Floors are hardened granolithic in the shops, wood blocks in the canteen and offices, and quarry tiles in the lavatories. The stairs have dark reconstructed stone treads, with fair-face concrete risers and spandrils painted. Ceilings are generally fair-face concrete, unpainted; but under the north-light roof the metal decking has been left exposed and spray-painted aluminium. Concrete flats are insulated with cork. Balustrading to the stairs is in wrought iron with aluminium handrails. Double doors to the shops are Plymax, steel-faced and painted red, other doors being flush ply-faced and stained.

SERVICES.—(*a*) *Electricity:* Machine tools are driven by electric motors on the individual machine. Power is carried in central floor ducts down the centre of each shop, with junction boxes from which feeders tee off to any required position. Lighting is by fluorescent tubes. (*b*) *Heating:* Low pressure hot water pipes and radiators under the benches along the walls of the shops. Panel heating is provided also in the machine shop ceiling. (*c*) *Hot water:* Gas storage and instantaneous heaters supply workers' and staff lavatories. (*d*) *Gas:* Gas points for burners are distributed throughout the shops, main feeders under the ceiling of the machine shop giving flexibility for connections up or down as required. All pipes and conduit runs are exposed for access.

The general contractors were Messrs. Rattee and Kett, Ltd., of Cambridge, and the clerk of works was Mr. W. J. Woolacott.

The principal sub-contractors were:—Pressure Piling Co., Ltd., piling; Phillips Floors, Ltd., r.c. floors; Redpath Brown and Co., Ltd., steelwork; J. Wontner-Smith Gray and Co., Ltd., heating and hot water; Crittall Manufacturing Co., Ltd., British Challenge Glazing Co., patent glazing; Grierson, Ltd., electrical work; Croft Granite, Brick and Concrete Co., artificial stone; Venesta, Ltd., Plymax doors and w.c. partitions; John Thompson Beacon Windows, Ltd., door frames, special soundproofed screen; Ruberoid Ltd., roof decking; Dent and Hellyer, Ltd., sanitary fittings; Surfastal, Ltd., floor protecting grid; A. Bleakley and Co., glazed tiling; Lenscrete, Ltd., roof lights; N. F. Ramsay and Co., Ltd., door furniture and ironmongery; Soil Mechanics, Ltd., soil tests; Malcolm MacLeod and Co., Ltd., granolithic floors; Roneo, Ltd., glazed steel partition; Esavian, Ltd., sliding folding doors; Hollis Bros. and Co., Ltd., wood flooring; Jayanbee, Ltd. (formerly Joinery & Builders Supplies), flush doors; Val de Travers Asphalte Paving Co., asphalt roofs; Anderson Construction Co., Ltd., insulation to tank room; F. Braby and Co., Ltd., aluminium tower covering; Herbert Morris, Ltd., crane and travelling gear; Kingsmill Metal Co., Ltd., entrance gates; Stewarts and Lloyds, Ltd., hydraulic piping; Bromsgrove Guild, Ltd., staircase balustrading; and Bostwick Gate Co., Ltd., sliding grilles.

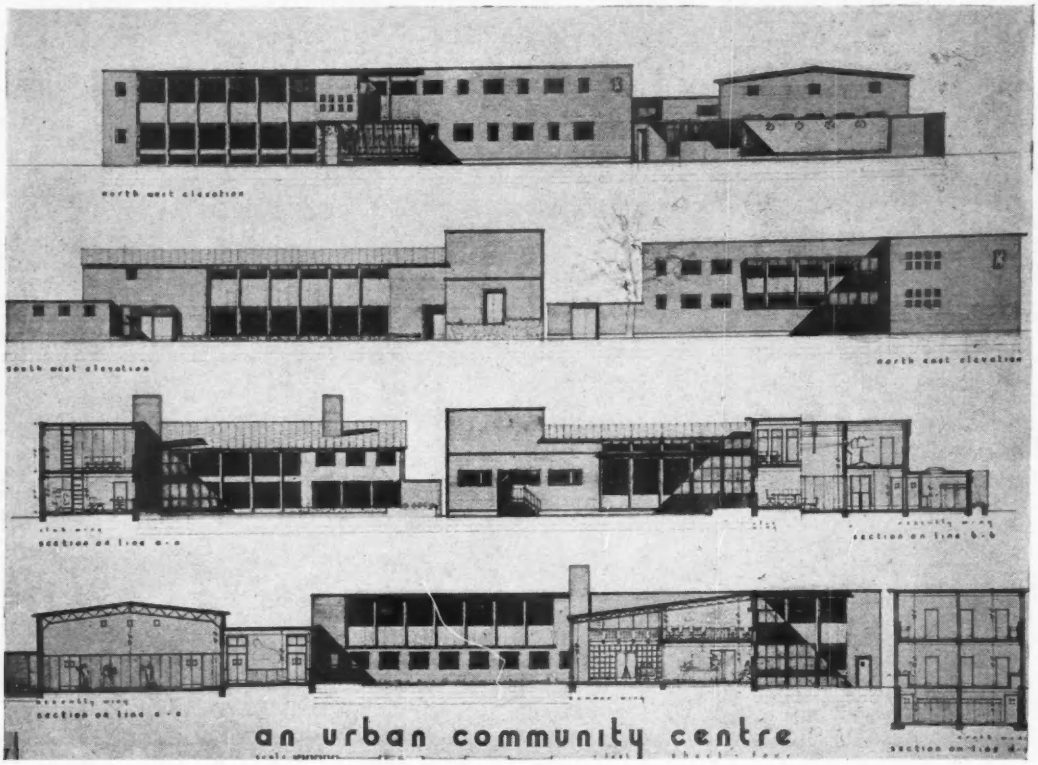
Mural decoration in the stores, by Toni Bartl.



The machine and fitting shop.

The instrument shop.

NEW WORKSHOPS, DEPARTMENT OF ENGINEERING, UNIVERSITY OF CAMBRIDGE



Elevations and sections.

URBAN COMMUNITY CENTRE: WINNING DESIGN. W. J. THOMAS AND J. K. CHALTON, A.R.I.B.A., ARCHITECTS

COMPETITION FOR URBAN AND RURAL COMMUNITY CENTRES, FOR THE INCORPORATED ASSOCIATION OF ARCHITECTS AND SURVEYORS

THE I.A.A.S. open competition for Community Centres —for both rural and urban sites—has now been decided. The result was given in our last issue. Following are the terms of the award of the assessors : G. Bertram Carter, F.R.I.B.A., F.I.A.A. ; Cllr. W. J. Clark, F.I.A.S., F.R.S.A. ; Richard Clements, O.B.E. (General Secretary, London Council of Social Service) ; Kenneth J. Lindy, F.R.I.B.A., F.I.A.A. ; H. Anthony Mealand, F.R.I.B.A., M.T.P.I., A.M.I.Struct.E. ; and the Dowager Marchioness of Reading, D.B.E.

General—The assessors were a little disappointed that a greater number of entries than 27 were not received in both sections of the competition. It was felt that a probable factor was the omission from the conditions of a precise stipulation of the accommodation required to be provided for. The assessors considered, however, that the omission of such particulars was justified, since in actual practice they would seldom be given, and the problem set for the competitors faithfully represented what would be encountered by an architect called upon to design structures of this type.

Rural Section—Generally, the competitors failed to take advantage of the orientation, and this alone put the majority out of the running. The design (No. 3) submitted by Devereux and Davies, A. and F.R.I.B.A., does, however, take full advantage of the orientation, and the assessors were unanimous in awarding this entry the first prize of £100 in the Rural Section. The assessors were impressed by the manner in which these competitors had composed a series of units into a comprehensive whole, the treatment enabling each unit to be planned to the best advantage. They felt, however, that the rather dull presentation of the drawings failed to do justice to the design generally.

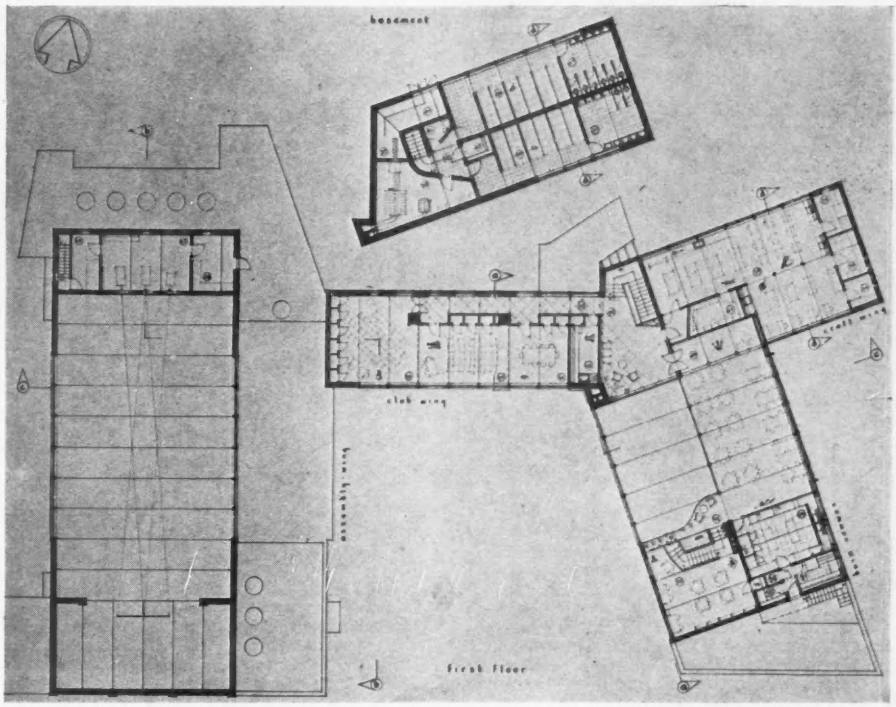
The assessors, in awarding the second prize of £50 to A. Clayton (for design No. 8), considered the plan to be very workable. The competitor, however, failed to take advantage of aspect, except in so far as he obtained his sun terrace to the main hall. In this case, while the architectural treatment provides a very interesting composition, its contours are over-severe for rural surroundings, and the treatment as a whole was felt by the assessors to be too sophisticated for its location.

The assessors felt design No. 4, submitted by H. W. Pickstone, B.Arch., A.R.I.B.A., again to be a very workable plan, but the competitor appeared to have ignored the disposition of the site and aspect altogether. Furthermore, the pitch of the roof of the main hall, and the tall, attenuated chimney stack destroyed the homogeneity of the design. The drawings, however, are really delightful, and merited, in the assessors' view, this design receiving hon. mention.

Design No. 2, by G. F. Taylor, secures hon. mention as a compact and generally good proposal. Unfortunately, however, it does not take into fullest consideration the aspect. The competitor also failed badly on his elevations and in the presentation of his drawings.

Urban Section—The assessors found the quality of the entries in the Urban Section of this competition considerably more gratifying. Indeed, they experienced some difficulty in determining the first award, even after reducing the probable winners to a short list. After careful consideration they awarded the first prize of £150 to W. J. Thomas and J. K. Chalton, A.R.I.B.A., for design No. 17, for the following reasons :

The plan was an extremely workable one, and the disposition of the several units particularly excellent ; all departments are accessible to the main entrance, and the general layout also makes good use of the aspect of the site. The assessors, moreover, held the view that the elevational treatment was well suited to its urban surroundings ; the

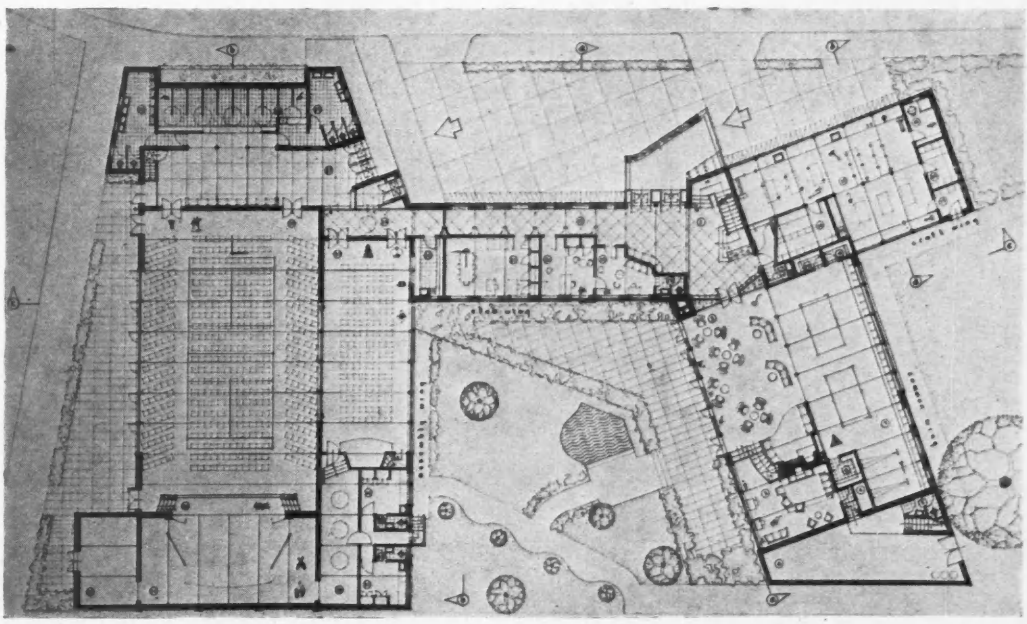


Basement and first-floor plans.

Ground Floor.—(1) Entrance foyer; (2) common; (3) quiet reading; (4) yard; (5) staff lav; (6) fuel; (7) games; (8-10) stores; (11) cleaner; (12) heavy crafts; (13) forge; (14) store; (15) materials; (16) store; (17) exhibition hall; (18) inquiry; (19) lavatory; (20) warden; (21) group secs; (22) caterers; (23) small ass. foyer; (24) small assembly; (25) large ass. foyer; (26) cloaks; (27) female lav.; (28) male lav.; (29) large assembly; (30) forestage (chairs under); (31) stage; (32) scenery; (33) greenroom; (34) dressing; (35) lavatory; (36) dressing-room (chairs under); (37) lavatory.

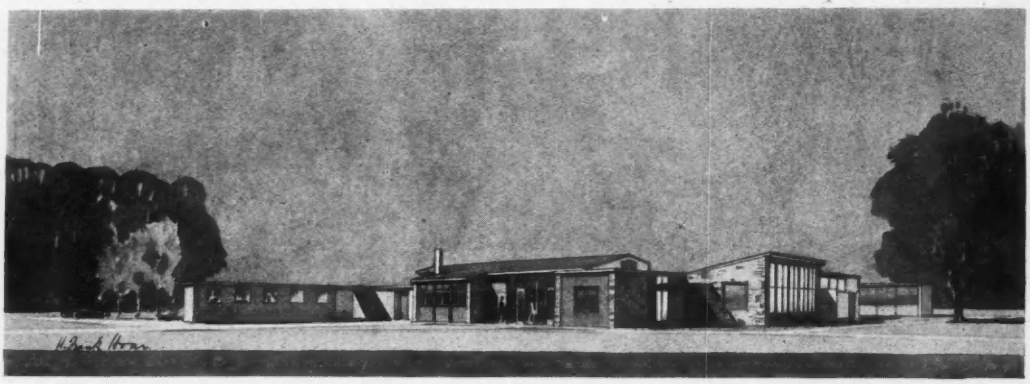
Basement.—(38) Heating; (39) fuel; (40) chute (meters under); (41) ash hoist; (42) cleaner; (43) foyer; (44) male cloaks; (45) male lavatory; (46) female cloaks; (47) female lavatory.

First Floor.—(48) Gallery foyer; (49) canteen; (50) kitchen; (51) larder; (52) veg. store; (53) cleaner; (54) aquarium gallery; (55) quiet games; (56) store; (57) light crafts; (58-61) stores; (62) corridor; (63) photography; (64-66) club rooms; (67) projection; (68) re-wind; (69) dimmer.



Ground-floor plan.

URBAN COMMUNITY CENTRE: WINNING DESIGN. W. J. THOMAS AND J. K. CHALTON, A.R.I.B.A., ARCHITECTS



Drawn by H. Frank Hoar.

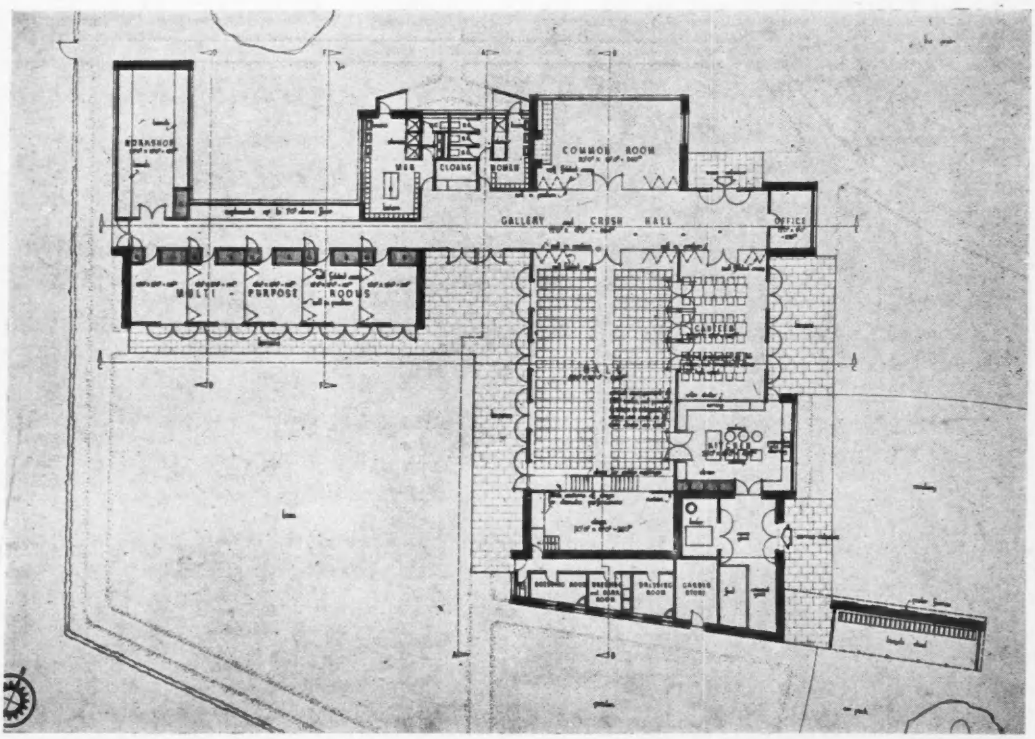
The perspective.

assessors were united in their appreciation of the high standard of draughtsmanship displayed by this competitor.

In selecting the design to be placed second, the assessors found themselves quite unable to adjudicate between the respective merits of No. 19, submitted by F. W. B. Charles, B.Arch, A.R.I.B.A., and No. 26, submitted by Margaret E. Rix, A.R.I.B.A., and Norman Rix, B.Sc., A.R.I.B.A. Each wins a prize of £50.

No. 26 displays an extremely direct and simple planning solution to the problem ; rightly orientated to the sun and site, bold but sympathetic in its elevational treatment. A defect in this scheme was that only one workshop was provided, and this in such close relationship to the stage that its purpose became obviously specialised ; it would not be well suited to arts and crafts. A further defect is the unilateral gallery to the main hall, which, while it might have some uses for activities taking place on the floor of the hall, would be useless for watching stage productions, and would possibly produce acoustical problems. The assessors were unanimous, however, in their admiration of the delicacy of the draughtsmanship displayed, particularly in the elevations.

Design No. 19, otherwise outstanding and excellently orientated, failed to secure the assessors' full approval on account of the rather ragged internal planning and, in particular, the placing of the craft rooms (including metal work) over the games wing. In the assessors' opinion this plan would not be so easy to work as that which secured the first award. The elevational massing is extremely fine, expressive of its function and suited to its urban environment. The assessors would like to draw particular attention to the exceptionally high standard achieved by this competitor in the presentation of drawings, and the originality displayed in the competitors' sectional perspectives.



The ground-floor plan.

RURAL COMMUNITY CENTRE: WINNING DESIGN. DEVEREUX AND DAVIES, A. AND F.R.I.B.A., ARCHITECTS

IN PARLIAMENT

Housing Policy

THROUGHOUT the debate on the Address in reply to the King's Speech, many members were severely critical of the Government's housing policy. On March 13 MR. ELLIOT moved the following amendment on behalf of the Conservative party: "But humbly regret that the Gracious Speech makes no reference to the grievous and growing distress in town and country arising out of the continuing decline in the number of new houses built each year, and contains no indication that the Government intend to take more effective measures to deal with the situation." He said that the Government were proposing to make a heavy cut in the housing programme, and it was that decision, involving many minorities, which the Opposition were asking the House to resist. The decline in the rate of building had already begun to be manifest. In October, 1948, the number of houses completed was 19,741; in October, 1949, 16,433; in November, 1948, 18,866; in November, 1949, 16,492; in December, 1948, 19,321; in December, 1949, 17,436. It was that process which was lengthening the waiting list, and which the Opposition were asking the House to disapprove. The round number of permanent houses provided in the United Kingdom in 1948 was 228,000, and in 1949, 198,000. The number anticipated for 1950, according to Government statements, was 175,000. That represented a cut in two years of between 20 and 25 per cent. The figure of 175,000 was only half the number of houses which were built before the war, in the days of "Tory misrule."

MR. BLENKINSOP, Parliamentary Secretary to the Ministry of Health, said the consistent policy of the Government in housing since 1945 had been to allocate to it as much of the national resources as they could afford—and it was no use pretending that there were not other demands on those resources—and to use those resources to secure houses for those in the greatest need. The Opposition asked for greater scope to be given to building for sale, but the vast mass of the people could not afford to buy houses, even with loans at war rates of interest. Since the war there had been built in Great Britain 1,063,000 additional houses (excluding service camps and requisitioned properties), and of these 638,000 were permanent houses and 157,000 temporary houses. In addition, war damage repairs had been carried out to 775,000 houses, and this could be recognised as the equivalent of 100,000 new houses. In the rural areas local authorities had provided 120,936 permanent houses, and other authorities 437,000. The Opposition complained that the private builders were not allowed to build. Only 7 per cent. of this work had been undertaken by direct labour, and over the rest of the field the private builder had been at work for the local authorities, but what annoyed the Opposition was that there were strict controls over the amount of profit they could make. That was the real basis of the Opposition's criticism. What demand was there for houses for purchase? An inquiry in Birmingham showed only 6,000 would-be purchasers, and 3,000 of these were on the waiting lists of local authorities. This indicated the ratio of one in five for purchase was far too generous to the private builder, and the proportion of houses for those who needed to rent them not high enough. There was no great pool of workers available for house-building. In January this year the total number of building and civil engineering workers unemployed was 35,000; in January, 1938, there were 187,000 unemployed building workers. When it was said that fewer houses were being built with the same labour, the answer was that houses of a higher standard were being put up. It was felt by the Government that standards in house building, while undoubtedly higher than in the years before the war, were not too high to meet the needs of the people.

In the debate which followed, MR. MCINNES, a newly elected Labour Member, suggested that the Government should consult the building industry to ascertain the implications of granting a guaranteed week of 44 hours to the building worker. The Government should also inquire into the organisation of the industry, which was hampered by the number of small uneconomic units. The industry was the most backward of the major industries.

MR. MARPLES said that the controversy over the merits of direct labour or private enterprise should be put to the test by the Ministry of Health arranging for 300 or 400 houses to be built as an experiment by a large private firm under the system he (Mr. Marples) advocated. The technical staff of the Ministry of Works should examine the cost. If the houses were built 10 to 15 per cent. cheaper and faster, it was what was wanted in the country. The Government should give careful consideration to the use of substitute materials in lieu of timber, which could be carried too far until it became uneconomic; priorities on expenditure in hand and soft currency should be altered in order to obtain more timber, and the bulk buying in timber should stop because the quality would be better if it were bought by the private buyer. The Ministry of Health was weak technically, and the technical side of house building should be the responsibility of the Ministry of Works. The Government, he declared, had failed in their housing programme.

After MR. A. BEVAN, the Minister of Health, had replied in a vigorous speech, in the course of which he expressed the hope that he might go down in history as the barrier between the beauty of Britain and the speculative builder, the amendment was negatived by 314 votes to 289—Government majority, 25.

Local Authority Waiting Lists.

IN reply to questions by MISS IRENE WARD, and MR. MARTIN LINDSAY regarding the total number of applications for houses on the lists of local authorities, MR. BEVAN said, the Government had been considering whether they could usefully publish any further information about the extent of the demand and need for houses

Toward the end of 1948 over 800,000 additional homes had been provided, and on the basis of the estimates made in 1945 it would have been expected that in many districts the demand from families without a separate home of their own would have been substantially met. The information published locally by local authorities as to the numbers of applicants did not, however, support this view. Local authorities were accordingly asked in November, 1948, to sift their records of housing applications and to inform the Ministry of Health how many of their applicants still desired accommodation.

Mr. Bevan continued:—

The request to the local authorities was couched in as simple a form as possible to avoid undue expenditure of labour and in order to meet the wishes of the associations of local authorities. Examination of the replies has shown that the form was not sufficient to iron out differences in the administrative arrangements made by different local authorities. The information therefore gave an erroneous picture of the effective total demand and also of its distribution between the various local authorities.

Two conclusions emerged, however:—(1) The original estimate which was made during the war has in post-war circumstances turned out to have been a substantial under-estimate of the true position. (2) The number of applications which have been accepted by local authorities from families requiring a new home and which are still outstanding will call for the continuance of the housing programme at the highest rate that is possible, having regard to the other claims on the national resources, in order to enable a separate home to be offered to each family who desire to have one.

The experience both of the estimate published in 1945 and of the sifting of applications in 1949 confirm that global estimates cannot usefully be made except by means of detailed local analysis prepared on a standard basis and made according to a uniform procedure in all areas. Such an analysis can, of course, be secured only by a comprehensive survey of their area by each local authority with appropriate arrangements for keeping the result of the survey up to date.

The Minister added that his Department was undertaking preliminary consultations with the associations of local authorities as to the form which such a survey should take in order to secure the best results. (March 9.)

Housing Subsidy.

On March 9, also, MR. WALKER-SMITH asked the Minister of Health whether he proposed to undertake a review of contributions as contemplated in Section 16 of the Housing (Financial and Miscellaneous Provisions) Act, 1946.

MR. BEVAN replied in the affirmative.

Canadian Gift of Timber.

The 47 tons of Douglas fir, the gift of the British Columbia Lumbermen's Association for the Festival of Britain, arrived at Liverpool last week-end, from whence it was sent to Messrs. Jicwoods at Weybridge for converting into laminated arches for use in the high level approach from Waterloo Station to the South Bank Festival Exhibition site.

Mr. Dalton's Secretaries.

THE Minister of Town and Country Planning, the Rt. Hon. Hugh Dalton, M.P., has appointed Mr. J. D. Jones to be his Private Secretary, Mr. F. S. Foster to be his Assistant Private Secretary, and Mr. George R. Chetwynd, M.P., to be his Parliamentary Private Secretary.

NOMOGRAM FOR TIMBER USERS

In response to a number of inquiries, the Nomogram designed to avoid repetitive calculations in checking timber volume and costs (published in our issue of February 24) has been reprinted on card. Copies may be obtained from the Publisher, *The Builder*, 4, Catherine-street, Aldwych, W.C.2, price 10d. each (post free, 1s.).

PLANNING AND ARCHITECTURE

Creating New Techniques in Design

THE need for constant revision of our theories of application of the principles of design was a point made by PROFESSOR R. A. CORDINGLEY, M.A. F.R.I.B.A., M.T.P.I., when he spoke on "Planning and Architecture" at the Town Planning Institute on March 2. Following are extracts from his remarks :—

In the practice of planning it is the part of architecture to represent the cause of visual amenity. Basically, the principles of good design are unchanging, and over centuries of time so much authoritative investigation has gone to their interpretation that one cannot hope to make vital fresh contributions. As to application of the principles, the situation is different. Here there is plenty of room for fresh endeavours, for few if any of the factors affecting environmental conditions are stable.

The parts of towns have differing functions; residential, industrial, business and shopping. These subdivide again into narrower but not necessarily strictly demarcated use-zones. Within each zone, the majority of the buildings are of a similar general class, but vary quite widely in the precise nature and degree of importance of the functions they perform.

If zones have their respective characters, so too should the buildings which compose them. In this matter of appearances, visual fitness does not follow automatically from the efficient performance of function, as some might contend. Some buildings do fulfil their part in every way by the direct expression of use—a windmill is an instance—but most, even of the everyday kinds, require deliberate manipulation on the part of the designer. Particular patterns of forms and colours convey to us their own psychological effects, which quite readily may be at variance with the purpose of the building elements which produced them. A church may serve its uses yet fail completely to express its character as such.

By what means then is suitable character to be contrived in external architectural effect? For an understanding of the means, however partial and inexact—for art is very much a matter of empirics—we may return again for a moment to the circumstances of vision. The eye sees, not physical forms themselves, but the pattern of light and shade which physical bodies create by obstructing or deranging the free passage of light. The eye can, in point of fact, be deceived into misreading physical fact even to the extent of seeing and recognising a non-existent object or of failing to be aware of one which is plainly visible. But the main point to be made here is that the *surfaces* of objects convey patterns of light and shade for recognition by the eye, and not the *junctions* of surfaces by which we customarily represent them in our highly-conventionalised technical drawings.

Character in Buildings.

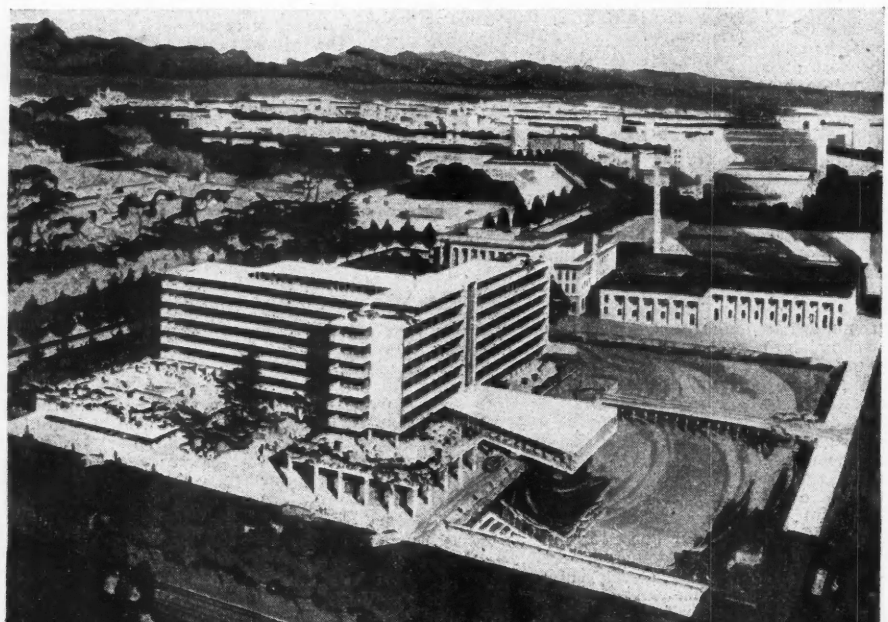
It is the flow of form of surfaces which is expressive. A line-drawing of a sphere is next to expressionless; yet under a source of keen light a sphere appears highly dynamic because of the infinite change in the intensity of the light falling upon its surfaces. Much more stable is the effect conveyed by the simple surfaces of a cube, of which only three can be seen at any one time. In the first case, we receive from the light pattern an impression of vigorous change, and from the other, one of strength and rigidity. We have here a first hint of the means by which character may be induced in buildings. Shapes may be chosen of kinds suited to the occasion. Were there time to follow these first inferences more closely we might safely be able to conclude that for a solemn occasion we should not attempt to use rounded, curvilinear forms, major or minor, except for a touch just adequate to force the true note by direct contrast. I know of no more worthy instance of such usage than a Greek temple, or, in more recent times, the Lincoln Memorial at Washington, the latter a sternly rectilinear structure in which the contrast element is afforded principally by the cylindrical shape of the columns. The complete congruity of this monument is undeniable. At the other extreme, and scarcely less direct in illustrating the point, is a fountain group of fascist days from what used to be called, but probably is not now, the Mussolini Forum at Rome. It is little more than a textured sphere, set on a square, shallow base—the contrast element—within a circular water-basin. It is simple, yet because of the nature of its form, decoratively chaste and charming.

Thus one might proceed to show that particular forms are expressive and meaningful in their own individual ways, and that the more homely buildings, not excluding those discharging the most lowly tasks, can be precisely suited by the cut and arrangement of their architectural garb. As the Lincoln Memorial indicates, civic buildings, with their duty of representing civic affairs, properly should assume a formal if not symmetrical disposition and an attire cut upon quite strict rectilinear lines, the parts few and large. The lighter the occasion and the freer may be the range of shape of forms employed: variety, suitably controlled and with a strong admixture of curvilinear forms, expresses gaiety; sparing simplicity the reticence or placidity fitted to domestic buildings; flowing or sinuous forms: grace; slenderness; elegance. To attain the needful character it is by no means necessary to model the mass of the building as a whole; the disposition, proportion and nature of the constituent elements alone will serve.

The Importance of Size.

The virtues of forms and colours may be intensely sharpened by calculated comparisons and contrasts, but always there must be a dominant note. Ordinarily, a small object superimposed upon a larger becomes focal, and the larger reads as a background to it. Decorative embellishment, therefore, is the more rewarding if used at the focus.

Not less important in this matter of architectural characterisation is the matter of size. This is an aspect of scale, *i.e.*, of the dimensions of physical things in direct or indirect relation to the human form. Great size enhances the qualities inherent in specific forms, sometimes much to the detriment of their utility in good design. Great masses dominate and impress us, always forcefully and sometimes unpleasantly, according to the particular proportions in which they appear. On the other hand we condescend towards things smaller than ourselves, and usually are disposed



A PERSPECTIVE DRAWING of the 1,000-room hotel designed by Welton Becket, the American architect, and to be built in the grounds of the Imperial Palace, Tokyo. The wedge-shaped projection is a dining terrace built over one of the moats separating the Imperial gardens from the city.

to view them favourably in consequence. (Hence the advantage in making models of our schemes to present to our clients or authorities.) At close quarters, a towering but perfectly plain wall may impress us solely because of its grand dimensions; the ponderous inner proportions of an Egyptian temple crush us into awe-inspired admiration. The Pyramids have nothing to commend them artistically, apart from their size. The skyscrapers of New York may be admirable as a technical *tour-de-force*, but otherwise there is little exceptional about them except their breath-taking height. A gasometer ordinarily is unsightly, not because of its shape, which is inherently pleasant, but because of the abnormal proportions, so frequently vastly out-of-scale with its surroundings.

After some remarks about the form of buildings, Professor Cordingley went on: It is too little realised how potent a disrupting visual force in the town and city street the service impedimenta may be, particularly of such as tram-standards and telegraph-poles, not to speak of networks of overhead trolley-wires. Compare any old drawing of a town scene with its modern state, in instances where the original buildings have survived. The importance of this matter cannot be exaggerated; it is much more serious than the actual defacement of façades with posters. How many millions of money go to making buildings architecturally worth while, and at what little careless cost is their character destroyed! Nothing is quite so devastating to the street scene as rows of standards, backwards-leaning to take the strain of overhead wires. In industrial towns there is scarcely a central main street that is not completely spoiled. Street furniture is necessary, but in modern comprehensive planning there are great opportunities for drastic revision of the present methods of road-service. The fact that, in the "precinctal" method of town planning, buildings are not to be permitted to front directly on to main roads, offers some ideas, as it is upon such arteries that the need for poles of one kind or another principally arises, and there, trees might be used to break or mask the insistence of their trenchant lines.

The Visual Viewpoint.

Towns are built for the user; that is to say, the visual viewpoint is some few feet above the ground and not in the air. Consequently the patterning of buildings in solid relationships is fundamentally wrong; the definition of space is the correct objective. In creating enclosure, there obviously is, in any given instance, an optimum relationship between the height of the buildings (or other physical objects—trees, for instance, can just as well contribute) and the space enclosed. Yet this relationship cannot be laid down as a concrete ratio, a ratio between building height and foreground, since the defining buildings may be continuous or spaced apart. In designing open spaces too, it has to be remembered that trees are, or may be, solid objects, and whether initially present or suffered to grow, they may have an unintended bearing on the proportions. Quite a few fine squares and *places* are partially or wholly ruined by central, solid banks of trees, which, in restricting the vision, have turned the enclosure from a single unit into a mere ring street.

Buildings around streets and spaces must show their kinship in some definite way. There are three alternative conditions which may be established to serve this end, and of them the most important is that in which "rhythm" is the linking agent. Rhythm is capable of expression in one or more of four terms: colour (applied or in materials), form, mass and spacing. It is not necessary that buildings agree with one another in all these terms, but when they do, they are, of course, identical.

I must reiterate here, as a caution, a statement made at the outset, that attractiveness requires diversity of form and colour, as much as and no more than can be assimilated readily by the eye. Too great an extension of rhythm produces monotony, the visual stimulus of each element becoming weakened by repetition. On the other hand, orderly arrangements assist rapid assimilation, and allow the safe introduction of more variety of change than would otherwise be practicable.

This æsthetic rule requiring "unity," *i.e.*, reciprocation of some kind between the elements of a visual scene, is the basis of design and must therefore also be of any code of rules drawn for elevational or environmental control: and I digress at this point sufficiently far to say that it is quite impossible to draw up any single set of specifics of control capable of successful application to each and every functional part of a town, for the simple reason that the nature of the faults to which the respective parts are liable ranges from completely opposite extremes. The typical town centre, for instance, suffers from an excess of change—it is chaotically untidy; the sin of residential suburbia is not that it has too much variety, but too little.

Summing Up.

I will try, finally, to sum up the latter few points by illustrating an experiment. It has been said or implied that the great danger in comprehensive planning is over-regimentation; on the other hand, that picturesque or informal planning can only be produced by a single agency with the greatest difficulty, especially if, as is usually the case, economy is a prime factor. Is there any way of securing the advantages of both and the disadvantages of neither?

I will not say that the experiment I am about to describe had this particular inquiry in view. It was intended to test a simple means of elevational control applicable to residential areas, one requiring a minimum of sacrifice of individual liberty.

In June, 1944, seven students of architecture, in no way specially selected for the purpose, were given a block-plan of a row of seven juxtaposed houses. There was shown there a back-passage separating the site proper from a golf course, and there was a tree or two. The students were given no indication that an experiment was being made, and they did not see the site, although the plan was actually drawn from fact. The house frontages were somewhat unequal in width, and the buildings projected irregularly. A new building line was drawn on the plan. Each student was asked to assume that a client proposed to pull down one of the houses and build anew to his own requirements. This meant, in fact, that the students were left perfectly free to design such a house as they chose, up to the capacity of the respective sites.

The only conditions laid down were: observation of normal bye-laws and the new building line; open-front gardens; roofs to be of tiles, of a colour within a range indicated by samples supplied; walls to be of brick, similarly within a colour range of samples provided. No other restrictions whatsoever.

The natural tastes of the designers were as widely varied as they might be in any seven architects casually selected. They made their designs: each was then asked to prepare a model in its proper site relationship to the other designs. All collaborated in the making of the open front gardens and other elements of the general setting. The results showed that houses built on such lines would make an attractive group, of a good deal better visual quality than commonly is found in the suburbs. It was interesting, too, to compare the group shown in the model with a typical street scene from an English traditional village—*e.g.*, Kimbolton—where the individual houses shoulder one another, yet have ample variety of form and feature, occasioned by piecemeal building and rebuilding at successive times.

The comparison showed reasonably well that the ends reached by normal processes of accretion can be counterfeited by employing separate agencies in designing; but it is not necessary to conclude that the houses must also be *built* by separate means. We have, then, a possibly practicable idea for contemporary application.

Conflicting Opinions.

Moving a vote of thanks to Professor Cordingley, MR. J. H. FORSHAW (Chief Architect, Ministry of Health) said that the paper took them, they might think, into swift water and deep places, not because they disputed his argument but on account of the conflict of opinion as to the need for controlling or regulating architectural design. All he had said and inferred was valuable, and although his remarks might seem to have been addressed to the architect by reason of his visual training, they were, he ventured to say, of great importance to everyone concerned with planning. They might have few opportunities for building on a large scale in the years immediately ahead, but they should make sure that their street planning was such that when the time came they could develop sites and frontages effectively.

In approaching the problem of redevelopment, the planner must act with vision; he must approach the problem as the painter composed his picture. He must look into the future and he must try to see the completed town as the architect saw the completed building. Then, as work progressed, he must apply the principles to which Professor Cordingley had referred; first in the master plan and later in the several units of the township.

How, Mr. Forshaw asked, was the planner to bring this about? He suggested by discussion with the architects, neither dictating nor controlling, but by close co-operation achieving a balance in the weight of development, and taking care of plan shapes in both buildings and open spaces. In this way the architect, whether he was himself designing or directing development, would maintain cohesion.

It was, Mr. Forshaw thought, the application of the principles of design in the planned scheme as a whole that mattered for the future. Sensitive design in the visual quality of the street plan was of an importance equal to that of the elevations. Time would sweep away the overhead cables, the mean furniture of the streets, but an amendment in the road frontages and the layout pattern was difficult.

The town-plan should be punctuated not only by blocks of fine architecture but also by enclosed open spaces. Not all buildings of to-day would have a permanent and expensive exterior, but the shapes and silhouettes could be distinctive and colourful. Mr. Forshaw said he believed that a demonstration was unfold-

ing at Harlow, where the theory which Professor Cordingley had explained had been taken into account.

Mr. Forshaw mentioned that soon Professor Cordingley was to make the award of the Ministry of Health's Housing Medal for the best schemes in the Westminster area. This, he hoped, would be the forerunner of an annual award for the encouragement of good design.

MISS J. F. ADBURGHAM, seconding the vote of thanks, declared that architecture could not be static or confined; always the architect had to take into account the effect of new materials. She wondered whether those responsible for consenting to building plans understood the motive of the designer. No drawings, however excellent, could be exact replicas of a building, for the medium was entirely different from that in which the building took form. Only the mind's eye of the designer and that of the few who had the capacity to "see" could really assess.

She had reached the conclusion that much difficulty lay in the fact that just as few people were born to be prima donnas, so few were born to "see," though all were endowed with the faculty to look. Nothing, she thought, could be more true than that good appearance was part of the function of any building.

In the study of architecture down the ages, one discovered over and over again in the different regions a periodic swing back to the basic geometric forms—single uprights, circles and semi-circles, squares and oblongs, triangles and spirals—in use since days of archaic architecture and from which there was no escape. These were the shapes which the human being naturally created, whether he were primitive or civilised. These forms tied architecture and planning together with a Gordian knot which neither the sword of Alexander the Great nor controls, regulations, recommendations, theories and opinions could cut. They remained the fundamental patterns for planned ground layouts and for the planned containers, that was to say the buildings which were raised upon the ground. Miss Adburgham ended by saying that when planners advised on architects' plans it was to be hoped that they would always remember that to create architecture out of one's mind and to see its fulfilment, called for great exertions.

WOOD PRESERVATION

The Use of Arsenic Compounds

By J. Grindrod, B.A.(Com.)

THE destruction of timber through normal weathering, fungoid growths and wood-devouring insects in the course of a year reaches considerable proportions. It has been estimated that eight per cent. of all timber used is annually destroyed by fungus growths alone. In the United States, for instance, these losses are estimated at more than $250,000,000 per annum. Additionally, damage due to wood-devouring insects on land or in water, such as house beetles, white ants and marine borers, is calculated at more than $50,000,000 annually.

The preservation of timber against such destructive elements is, therefore, of prime importance, and for a couple of hundred years efforts have been made successfully to treat timber so as to prevent rot and decay from mycotic and other destructive agents. Chemicals have been used but results, generally, have not been satisfactory, chiefly owing to the absence of effective impregnation methods. The timber was merely painted or soaked in solutions of various chemicals resulting in poor penetration and insignificant protection. Nearly every conceivable chemical of moderate price has been tried with only a few proving of practical use, such as chloride of mercury, copper sulphate, zinc chloride, sodium fluoride, creosote and kindred oils.

It was not until the vacuum and pressure method was evolved that treatment became really effective. By this method the impregnating liquid is forced by pressure into the very structure of the wood after a vacuum has previously been created. Every crack and crevice in the timber is sealed with the prophylactic, and deep penetration into the wood is assured.

The method of injection having been solved the search for a fully satisfactory chemical agent was intensified. Sweden, a country with vast interests in forests and timber industries, was naturally well to the fore in these investigations. Research has been conducted in numerous Swedish institutes, laboratories and experimental stations, State-owned and private.

Of recent years the antimycotic and insecticidal properties of arsenic compounds have been discovered and tests over a period have shown that a compound containing chromium, zinc and arsenic in certain scientifically determined proportions produced the desired effect. Dissolved in water and forced into the wood by pressure the chromium component of the solution combines with certain reducing agents in the cellular structure of the timber to produce the required reaction.

The Swedish pioneers in wood preservation by this impregnation method are the Boliden Mining Company, who produce a variety of minerals on a large scale, including arsenic. The compound used in this treatment is known as Boliden Salt Preservative and is a mixture containing sodium bichromate, sodium arsenate and arsenic acid. This salt, diluted, is impregnated together with zinc sulphate. By the reaction of the bichromate with reducing substances in the timber, substantially insoluble arsenates of zinc and chromium are formed and these are fixed in the cellular structure of the wood.

The chemical formula for this process is as follows: $3H_3AsO_4 + 2Na_2HAsO_4 + Na_2Cr_2O_7 + 3ZnSO_4$ + reducing agents $3ZnHAsO_4 + 2CrAsO_4 + 3Na_2SO_4 + 4H_2O + 30$.

This salt has now been in use for more than ten years and the first type of pressure treating plant was constructed in 1940, which demanded a change-over from the hitherto prevalent open-tank treatment. Since 1940 many improvements have been made in methods and equipment, which have been made simpler and cheaper.

The plant consists mainly of the impregnating cylinder, the dissolving tanks for the salts, the mixing tank, storage tank, pressure-container tank, combination vacuum-pressure pump and special types of "trams."

The need for heat at the plant is reduced to a minimum because the impregnating solution must not be warmed above 120 degrees F. First of all the salt is dissolved in water and the solution poured into the mixing tank. A diluted solution of zinc sulphate is then added in the proportion of three parts by weight of crystallised zinc sulphate to four parts of the arsenic salt. Water is added up to the desired concentration, which in Sweden is normally 3.5 per cent. total salts by weight The homogeneous solution is then emptied into the storage tank.

Any bark there may be is taken off the timber and the impregnating cylinder is charged. A vacuum of about 24 inches Hg is drawn and held for such time as required by the properties of the wood. For Swedish pine 20 to 40 minutes is normally allowed. The solution is drawn into the cylinder and pressure container by the vacuum and the pressure period is commenced. For Swedish pine this is usually at the rate of 100 lb. per square inch for one to three hours. After this the solution is drawn off and a short final vacuum is applied.

In Sweden the absorption effected for dry-land uses is 0.65 lb. total salts per cu. ft. (using 3.5 per cent. total salt as previously mentioned), the absorption of the solution being about 18 lb. per cu. ft. Fixation of the salt in the timber is completed by two weeks ordinary seasoning.

After treatment the wood becomes pale green. It is quite clean and can be painted or glued or worked in just the same way as untreated wood.

A number of tests have been carried out using timber impregnated by this method. These include investigations by the Government Testing Institute and by State Communication Authorities in Sweden; and elsewhere by such institutions as the Forests Products Laboratory at Madison, U.S.A., and the Forests Products Institute of South Africa. As a result it has been shown that impregnation makes the wood in some measure fire-resistant, that the tensile strength of the wood is not affected, that the electrical resistance of dry poles treated with the salt is as high as that of creosoted poles.

Growth of an Industry.

Since wood was first impregnated commercially by the Boliden method in Sweden quite a large wood-preserving industry has grown up based on the use of this arsenic salt. There are now 53 plants in Sweden, most of which are pressure plants, the remainder being open-tank plants.

The Swedish Government is the largest user of this preserved wood and State enterprises and public works departments everywhere in Sweden, such as State Railways, the Telegraph and Telephone Administration, port authorities, electricity services, etc., now make impregnation a strict rule for sleepers, poles and timber used in constructional work. The Swedish Board of Roads and Waterways makes impregnation a condition for outdoor construction. Since 1940 the State Railways have impregnated more than two million sleepers with the salt. The Telegraph Department has had treated 5,000,000 cu. ft. of poles since the same year. This work has been carried out chiefly in State-owned pressure plants.

In other countries, too, this method is being adopted. Plants have been installed in Finland and Norway. At the annual conference of the American Wood-Preservers' Association at St. Louis, preparations were set afoot to adopt it as standard in the United States. Exploitation of the Swedish process has already been started by a prominent American concern. South America has ordered two plants, and representatives are available on all continents to assist with technical advice and experience.

Wood impregnated in this way has been tested with satisfactory results in tropical climates and has proved resistant to attacks from rot, fungi and even termites.

TOWN PLANNING

A Brains Trust, High Wycombe

IN connection with a Ministry of Town and Country Planning exhibition at the local public library, a brains trust session was held in the High Wycombe guild hall on March 7, organised by the local arts association. COL. LESLIE WATSON presided.

The Ministry was represented by its Press officer, MR. HOWARTH, and SIR STEPHEN TALLENTS represented the general public. MR. ANTHONY CHITTY, the town planner, and MR. PRINCE, the local planning officer, also took part.

A number of very varied questions were submitted, some a little out of date, since town planning has made considerable progress in its scope, if not in its reduction of rules and regulations.

The chairman, in introducing the members of the trust, spoke of the need for more public interest in town planning, and said that once a planning authority had produced a plan, it was for the public to criticise, approve or amend it if they intended to get a satisfactory plan. The more we could learn about the matter, with all its rules and restrictions, the better, he said.

In reply to the inevitable question—"Why do we need planning? We got on very well without it"—Mr. Howarth replied that, as our population was growing rapidly, planning was necessary or we should have to scramble for living and working space. Mr. Chitty said that he did not agree that we had got on very well without planning. The mess of mean streets and slums of the nineteenth century was the result of lack of planning, and would never be allowed under our present planning regulations.

A questioner asked: "In view of the rapid changes in our way of life, should we have a long-term policy which a future generation may want to scrap? Surely there must be flexibility in any long-term plan?" Mr. Prince stated that one important part of planning policy was to preserve the best aspects of the countryside and to hand this on to posterity as part of our traditional life.

To the questioner who remarked that each authority was working on its own plan and that there was no national plan to serve as a guide, Mr. Howarth replied that the Ministry did actually hold some co-ordinating authority, especially in regard to trunk roads. They were, in fact, trying to link up one plan with the next. Mr. Chitty thought it a good thing that there was no national plan, because, he said, local people knew far more about local needs than did the London officials.

The matter of Britain's large country houses was raised, and the trust was asked to say to what use they could best be put if they could no longer be used as dwelling houses. In general, the trust agreed that to convert them into empty dead museums was a mistake. It was wiser to turn them into cultural residential centres in which the public could feel that it had a part to play.

Much discussion followed on the vexed question of development charges and compensation, and it was generally agreed that the tax was indeed stopping private enterprise, but that a charge was essential.

Another questioner asked: "Can we be assured that with freedom of design we shall avoid the erection of ugly buildings?" Mr. Chitty suggested that only the best architects should be employed and should be trusted to use materials and methods in the best modern way. He added that in the eighteenth century the public was critical, but this standard had been lost in the past 200 years. Mr. Prince stated that 80 per cent. of new projects were now submitted by qualified architects and were reasonable and generally accepted.

Forestry, the level of water supply and the destruction of natural beauty by mining and quarrying were dealt with at length, as was also the question of colour in our city streets. In terraces particularly, the chairman said, it was a pity that private owners acted individually and divided up an architectural scheme even to the extent of painting half a gable white if the other half was green. Here was a case which needed united action to keep the architectural scheme unbroken.

FORESTRY VILLAGES

A Housing Centre Talk

DR. THOMAS SHARP, M.A., D.Litt., spoke to the Housing Centre Trust on March 7 on the forestry villages which he is planning for the Forestry Commission in Northumberland. The area concerned is one, just south-east of the Cheviot Hills, where the largest single afforestation scheme yet planned in England is to be planted. It is approximately 24 miles long from north to south and 15 miles wide in its widest part from west to east. The highest land is some 2,700 feet high. One of the most sparsely populated areas in the British Isles, at present it contains no kind of village at all, only a few scattered hamlets of a few houses each, varying from three to four. It is primarily sheep-rearing country.

Dr. Sharp said that the Forestry Commission envisaged the ultimate employment of one man for every 40 acres, as compared with one man to every 500 acres on the average sheep run. The population of the area would be multiplied at least ten times for the production of the timber which was being grown, and in the next 25 years 1,650 houses would be needed. As it was necessary for the villages to be sited as far inside the forest as possible, it was not practicable to plan the villages on the basis of extensions to existing hamlets, which were nearly all six miles or so outside the edge of the forest. The new villages would be ten to twenty times as big as the existing hamlets and, in fact, it was the new villages which would provide the social amenities for the hamlets in future.

Describing the villages scheme in detail, Dr. Sharp said there would be eight villages, half their total capacity being developed within the next 10 years. The largest would ultimately have a population of 900 to 1,000 and the smallest 450 (the average English village to-day has a population of 350). Commenting that it had been extremely difficult to find satisfactory sites, Dr. Sharp said it was necessary to find a "snug" situation, with the maximum of sunlight and yet adequate shelter from winds, within narrow valleys. Each village would have some six shops, probably several churches (the various denominations were already seeking sites), two public-houses and a village-hall where a cinema show could be held twice a week. With regard to schools, Dr. Sharp spoke of a "doctrinaire attitude" on the part of the education authorities, who insisted on the "four-stream" school, centrally situated and transporting the children to it from the villages, but it had been possible to get them to agree to at least one school for children up to seven years in each village.

Dr. Sharp said that in planning the new villages he had tried to maintain the essential character of the English village. The houses would be in terrace formation. Deliberately they would not be built in stone, which was rather dull and grey in colour and would tend to "lose" the villages in the background of the forest. Instead the houses would be of brick, whitewashed or colour-washed.

LAW REPORTS

Appeal under the Town and Country Planning Acts, 1932-1947, and the New Towns Act, 1947

KING'S BENCH DIVISION.

BEFORE MR. JUSTICE BIRKETT.

Harlow v. Minister of Transport

IN the King's Bench Division, Mr. Justice Birkett had before him by way of appeal, a case which related to the stopping up of certain greenways across Dunstable Downs at Luton, Beds, where new ways were to be provided by the Rugby Portland Cement Co.

Mr. Arthur John Harlow appealed under Section 11(2) of the Town and Country Planning Act, 1947, against the stopping up of highways purported to be made by the Minister of Transport under Section 49 of the Act.

It appeared that under a local Act of 1886, part of the downs, including the greenways in question, were reserved to the public at all times to walk over.

By Section 49(1) of the Act of 1947, the Minister of Transport might, if he were satisfied that it was necessary to do so in order to enable development to be carried out, authorise the stopping up or diversion of any highway, where it was required for the development of the land, viz., the carrying out of building and other use of the land.

For the appellant, it was argued that the 1947 Act did not empower the Minister to stop up these greenways.

His lordship said that, in view of all the circumstances of this case, he came to the conclusion that the order made by the Minister was not within the powers granted to him by the Act of 1947. It would, therefore, be quashed with regard to these greenways. The appeal would be allowed.

Leave to appeal was granted.

Liability for Repairs

COURT OF APPEAL.

BEFORE LORDS JUSTICES COHEN, ASQUITH AND SINGLETON.

Cunliffe v. Goodman

IN the Court of Appeal, Lords Justices Cohen, Asquith and Singleton heard an appeal by a landlord, Mrs. Cunliffe, from a judgment of the Lord Chief Justice, Lord Goddard, in favour of her tenant, Mr. Goodman, in an action for damages against him for breach of covenant to keep certain premises in good and tenantable repair and to reinstate the premises as a private dwelling house.

Mr. Lloyd Jones, K.C., for the appellant, stated that the premises originally consisted of a studio with living rooms attached. By an agreement of June, 1943, the premises were let to the defendant for the period of the war, and provided that it might be determined by three months' notice. The defendant was allowed under the agreement to use the premises for his

business as a manufacturing chemist, and alterations were carried out. There was, however, a covenant to keep the premises in good and sufficient repair and to reinstate them as a private dwelling house.

In 1945 the defendant left the premises and they were then in bad repair, and his client then brought her action. It was a fact that the appellant had intended to rebuild the premises if she could get the necessary permission. The defence was that the defendant was relieved from liability under Section 18 of the Landlord and Tenant Act, 1927, under the circumstances of this case, and that view had been taken by the Lord Chief Justice.

Counsel contended that the Lord Chief Justice had taken an erroneous view of the Act, and that the appeal should be allowed.

Mr. Salt, K.C., for the defendant, supported the finding in the Court below.

The appeal was allowed, with costs.

Lord Justice Cohen, in giving judgment, said he came to the conclusion that section 18 of the Act cited did not apply in this case. Considering the whole of the facts and the correspondence, he found it impossible to hold that the defendant had discharged the onus which was on him of proving an intention to pull down and rebuild the premises.

Lords Justices Asquith and Singleton concurred.

INQUIRY BUREAU

Cost of Paper Hanging

Q.—When submitting our tender for a certain painting contract, there was a small item of paper hanging measured at 52 sq. yds. The P.C. sum for the wallpaper was listed at 10s. per roll. Since the acceptance of our tender the item for paper hanging has been increased to 700 sq. yds. (this is not a provisional item).

A large proportion of the wallpaper used has cost considerably more than the P.C. sum of 10s. per roll, but, of course, we are able to claim for the increased cost. However, a small percentage has cost less than 10s. per roll, and our query is this: Since some of the paper has cost less than 10s. per roll, is this to our advantage, or will the whole amount be taken into consideration to obtain an average price per roll?

TESSO.

A.—To the question "Since some of the paper has cost less than 10s. per roll is this to our advantage?" the answer is no. With regard to the question as to whether the whole amount will be taken into consideration to obtain an average price per roll, the answer is the whole amount will be taken into consideration, but not to obtain an average price per roll.

A prime cost sum of *x* shillings or pounds is an allowance issued as a guide in regard to cost. The employer is free to exceed the sum mentioned or create a saving on such sum. The excess is a just charge, a saving a just credit, and it is customary when presenting the final account for the work to enclose the invoices for all materials governed by P.C. sums.

There is another point of interest. It is stated in the question that some of the paper has cost considerably more than the P.C. sum of 10s. per roll. In the majority of cases the more expensive the paper the greater the care in the hanging, therefore an increase in the labour charges for hanging a better-quality paper is usually regarded as fair and reasonable.

"CAIN."

FIRES IN BUILDINGS

Estimation of Temperatures Reached

SINCE 1935, a large number of investigations have been carried out on fires in buildings. Although the results have been used by the Fire Grading of Buildings Committee, data have not been published. These data are now being made available to the building industry in a series of papers to be published in the National Building Studies as Technical Papers. The first is now published—"National Building Studies, Technical Paper No. 4—Investigations on Building Fires, Parts I and II," H.M.S.O., price 9d. (25 cents U.S.A.), by post 10d.

This publication deals with the estimation of the temperatures reached in buildings during a fire, which is basic to the development of the subject. The first part deals with the estimation of the maximum temperature attained in building fires from examination of debris. The second part deals with the visible changes in concrete or mortar exposed to high temperatures. Much of the work was carried out in the laboratory, but the very numerous fires in buildings that occurred during the war, as the result of air-raids, provided an opportunity for the correlation of the behaviour of structures and materials during actual fires with that found under laboratory conditions at Fire Testing Station.

The Prefatory Note shows how research on fires has grown, and how the responsibility has now come to rest in the Joint Fire Research Organisation of the D.S.I.R. and the Fire Offices' Committee.

SMALL MOBILE PLATFORM HOISTS

Safety Enclosures and Gates

THE small mobile platform hoist is peculiarly suitable for housing work and is, indeed, finding widespread and increasing use on house building sites. One of its most valuable features is the ease with which it can be moved from one position to another. The hoist may be working at one block in the forenoon and later in the day at another in a different part of the site; it may even have visited one or more other blocks in the meantime.

It is obviously impossible for everyone on the site to know just where one of these mobile hoists is working at any moment. This mobility makes it all the more important to provide means of protecting the people on the site from accidental injury. The Building (Safety, Health and Welfare) Regulations, 1948, include definite requirements regarding safety precautions on building sites where hoists of any kind are used.

Fences, gates or other equipment used to promote safety should not impair the mobility of the hoist. They must be light, but robust and durable under the conditions usual on the building site. They must be easy to manipulate and erect; it may be necessary to put them up, take them down, transport to another position and put them up again several times a day. Although access to the

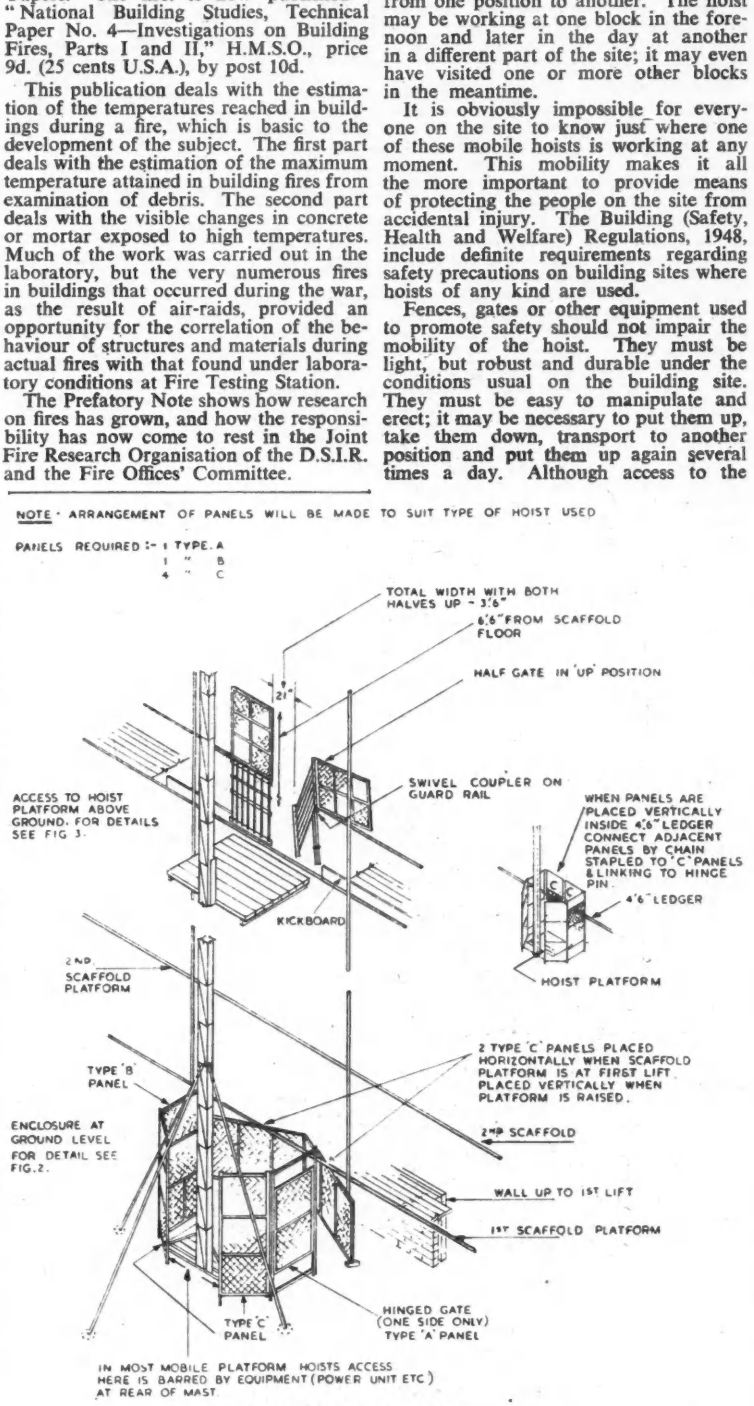

NOTE · ARRANGEMENT OF PANELS WILL BE MADE TO SUIT TYPE OF HOIST USED
PANELS REQUIRED :- 1 TYPE A
1 " B
4 " C
TOTAL WIDTH WITH BOTH HALVES UP - 3'6"
6'6" FROM SCAFFOLD FLOOR
HALF GATE IN 'UP' POSITION
21"
SWIVEL COUPLER ON GUARD RAIL
ACCESS TO HOIST PLATFORM ABOVE GROUND. FOR DETAILS SEE FIG 3.
WHEN PANELS ARE PLACED VERTICALLY INSIDE 4'6" LEDGER CONNECT ADJACENT PANELS BY CHAIN STAPLED TO 'C' PANELS & LINKING TO HINGE PIN.
4'6" LEDGER
KICKBOARD
HOIST PLATFORM
2ND SCAFFOLD PLATFORM
2 TYPE 'C' PANELS PLACED HORIZONTALLY WHEN SCAFFOLD PLATFORM IS AT FIRST LIFT. PLACED VERTICALLY WHEN PLATFORM IS RAISED.
TYPE 'B' PANEL
ENCLOSURE AT GROUND LEVEL FOR DETAIL SEE FIG.2.
2ND SCAFFOLD
WALL UP TO 1ST LIFT
1ST SCAFFOLD PLATFORM
HINGED GATE (ONE SIDE ONLY) TYPE 'A' PANEL
TYPE 'C' PANEL
IN MOST MOBILE PLATFORM HOISTS ACCESS HERE IS BARRED BY EQUIPMENT (POWER UNIT ETC.) AT REAR OF MAST.

Fig. 1.—Drawing showing assembly of Safety Enclosure Panels.

platform of the hoist is required on one side at a time only it must be possible to have the gate on either side of the hoist as the work demands. With these considerations in mind, the Field Test Unit of the Ministry of Works has developed a simple enclosure that can be made easily by any builder and used with any type of mobile platform hoist. Trials have shown that the enclosure can be erected and dismantled by three men in about ten minutes.

The enclosure consists of panels of light frame work, covered with chicken wire or expanded metal, which can be assembled around the foot of the hoist. One of the panels contains a gate.

Details of the panels used in the trials at the Field Test Unit are given in Figure 2 and their arrangement when in use is shown in Figure 1. It will be seen that there are three kinds of panel. Two of them have steel shoes fitted to the uprights so that the panel is held firmly in position when the shoes are driven into the ground, which should be done by pressing on the sill with the foot. It is a panel of this kind that contains the gate. These are known as "main" panels. The third kind is a wing panel, which is hinged to one of the main panels and brought close up to the mast of the hoist where it is held in position by driving a sliding spike (a sharpened door bolt) into the ground.

The panels were made up from 2 in. by 2 in. rough timber and creosoted. Both 1 in. chicken wire and 24 gauge expanded metal were tried on the frames. The expanded metal was found to be preferable as it helps to stiffen the frame. The weight of each panel was approximately 24 lb. The cost of a set of six would be about £10 10s., including creosoting and painting.

The panels could be made in metal if preferred, for example from small angle sections welded, but rough handling on the site might result in greater distortion of a metal frame than of a properly morticed and tenoned and generally well-made wooden frame.

It was found that the panels required no props or stays and were sufficiently rigid to form a stable barrier. Six panels were usually needed to make a complete enclosure 6 ft. 6 in. high. When the scaffold platform was at the 4 ft. 6 in. level the back wall of the enclosure was formed by two wing panels placed on their sides; when the scaffold platform was raised they were set upright. The panels can be bundled easily and compactly for transport.

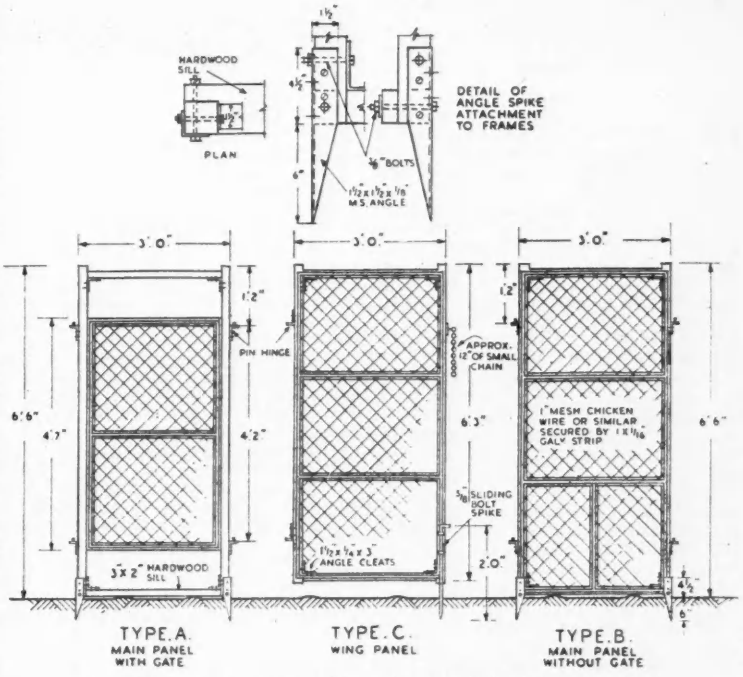


Fig. 2.—Enclosure and access panels for use with mobile platform hoists, ground level.

A gate for use at the off-loading point on the scaffold has also been devised. It is a double gate 6 ft. 6 in. high each leaf of which consists of an upper rigid portion, similar in construction to the enclosure panels, and, suspended from it, a lower folding portion of wood with metal slats. Both portions are carried on a piece of standard scaffold tube pivoted in a standard swivel coupler. Each leaf of the gate can thus be attached to the standard guard rail. The leaves are swung upwards to give access to the hoist platform and down again to close the gate. Smooth and rapid action is aided by a counterweight consisting of a short length of scaffold tube. Details of the gate are shown in Figure 3 and the complete assembly may be seen in Figure 1.

The weight of each leaf is 30 lb. without the counterweight. The gate can be rigged up by two men in about 10 minutes. The approximate cost is £4 10s., including painting and creosoting.

The prototypes can be seen at the Ministry of Works Field Test Unit, The Thatched Barn, Barnet-bypass, Barnet, Herts. Further particulars can be had from The Secretary, Ministry of Works, Lambeth Bridge House, London, S.E.1. Envelopes should be marked "For the Attention of Mr. C. P. Clement-Davies, Plant Adviser's Section."

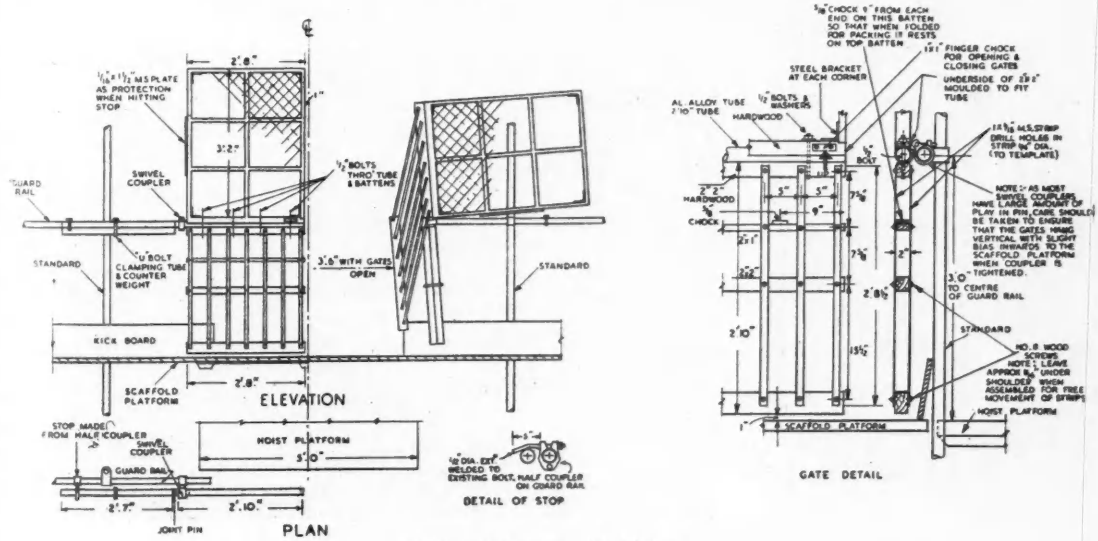


Fig. 3.—Gates to go on scaffold platform.

REPAIR OF A LONDON GARAGE

Use of Prestressed Concrete Beams

ON November 29, 1940, an enemy bomb fell on to the western end of the garage of Richmond Hill Court and destroyed part of it.

The garage is a semi-underground construction, 160 feet long and 50 feet wide inside. The flat roof was supported by eleven wide flange steel girders, and two of these were destroyed by the blast, together with a part of the tennis court laid out on top of the flat roof of the garage. A porter's lodge in the front of the garage was also damaged.

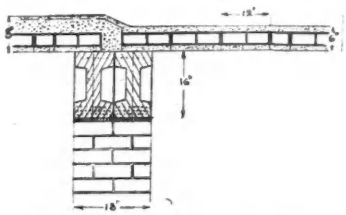
The garage was temporarily repaired by reducing its length by about 40 feet, removing the twisted girders, shoring up the damaged south wall with two 18 in. by 18 in. piers, and leaving an open concreted area 40 feet by 50 feet.

The restoration of the garage to its original state was delayed mainly on account of the shortage of steel, as a total of over nine tons would have been required to complete the work.

A scheme suggested by the author was accepted by the owners of Richmond Hill Court—the London Counties Freehold and Leasehold Properties, Ltd. According to the scheme, the maximum span was reduced from 50 feet to 30 feet, giving adequate manœuvring space in the centre of the garage and storing space on the south side. The north side has three piers with a 14 ft. 9 in. clear space between them and the north wall, which will be used for general stores and car-washing space.

All components of the roof were prefabricated and consisted of large beams of prestressed concrete, secondary cross-beams, also prestressed and placed at 26-in. centres, and filler blocks—patented "Plycrete" floor units.

The total area of the roof is 2,000 sq. feet—1,300 sq. feet of 6-in. thick slab and 700 sq. feet of 8-in. slab. The main beams are 16 in. high and 9 in. wide and are placed on the piers in pairs. There are 12 beams in all; six of them are 33 feet long and weigh 35 cwt., and the other six have the same sectional area, but are only 16 ft. 6 in. long, and weigh 18 cwt. These main beams have double the strength of ordinary reinforced concrete beams of the same section, and therefore are able to carry the dead load and the 40 lb. superimposed load per sq. foot required by the local building bye-laws.



Constructional detail of main beams and slabs.

The greatest length of an 8-in. high secondary beam is 14 ft. 3 in. (weight 265 lb.), and the beam can be handled by two men. The size of the filler blocks is 12 in. by 24 in. by 4½ in., and the weight 37½ lb.

The prestressed concrete beams were supplied by the Atlas Stone Co. from their Shorne Works, near Gravesend, and delivered by road to Richmond. The six 33-ft. long beams, weighing over 10 tons, were transported in one single lorry journey.

The "Plycrete" blocks were manufactured by the Helical Bar and Engineering Co., Ltd.

The site work necessitated the hire of a crane for two days, but the rest of the work was carried out by three men in a total time of under 200 man-hours. The site work consisted of placing the main beams on prepared piers, distributing the secondary cross beams on top of them, placing the "Plycrete" blocks between the secondary beams and laying foam slag concrete on top of the blocks to make a flush top surface.

The cost of the site work amounted to about 10 per cent. of the value of the contract, and in spite of adverse weather, the work was completed between January 23 and February 6 in 11 working days of an average of five-six hours per day.

PAUL SHISHKOFF.

SMALL BUILDERS AND THE N.F.B.T.E.

President Stresses Flexibility of Industry

MR. ROBERT O. LLOYD, O.B.E., F.I.O.B., president of the N.F.B.T.E., speaking at the annual dinner of the Oldham Association of Building Trades Employers, at the Union Club, Oldham, on March 10, said:—

It has sometimes been suggested that the National Federation is a body which represents the big builders rather than the smaller ones. Nothing could be further from the truth. In point of fact, it represents builders of all types and sizes and looks after the interests of all equally. Something like 74 per cent. of the firms in membership employ fewer than 19 men each, and only 1 per cent. of the total membership employ more than 360 men each.

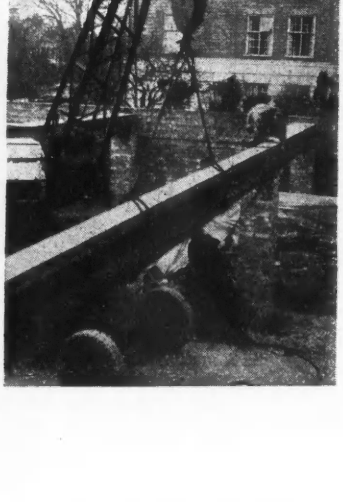
A True Cross-section.

The National Federation, which is the only federation of building trades employers which is represented on the National Joint Council for the Building Industry and on all the Government's advisory committees, is a true cross section of all the general builders in the country. In its evidence to the Working Party it stressed the fact that it was only because there were in existence building firms of all types and sizes that the industry has the necessary flexibility to tackle the wide variety of jobs which building owners demand. I shall be disappointed if the Working Party does not endorse this point of view in its report.

It was due to the efforts of the Federation that the smaller builders got a share of the post-war housing programme, that the general licence limit was raised to £100, and that, despite the cuts following devaluation last autumn, the limit stands at the same figure to-day.

The National Federation is also responsible for the "near-ripe" concession under the Town and Country Planning Act. Many of the smaller builders own land as part of their stock-in-trade, and will, therefore, benefit from this valuable concession.

Left: Placing a beam on the brick piers.
Below: Placing the secondary beams and the filler blocks.



PRODUCTIVITY IN HOUSE BUILDING

Findings of a Pilot Survey

THERE has been widespread interest in recent years in the productivity of various industries. A survey was carried out in 1949 by the Chief Scientific Adviser's Division of the Ministry of Works to measure man-hours and costs in house-building and to assess the effect of specific factors such as incentive payments. A detailed report of the methods and findings of this Pilot Survey is to be published as a National Building Study, and the following advance summary issued by the Ministry of Works shows that the survey will be of much interest and practical importance to builders.

The survey covered a sample of about 160 sites, on which 3,000 three-bedroomed houses had been built for local authorities during 1947 and 1948; the sites were widely scattered in Southern England, the Midlands and South Wales. The information was obtained from builders' books and records by special teams of investigators, who spent two or three days on each contract. The results were checked, house specifications examined, site conditions and workmanship investigated, by a group of experts with long practical building experience. Every precaution was, in fact, taken to ensure that the results were both accurate and representative of all local authority house-building in these regions.

Average Site Conditions.

The average site in the sample had 20 houses, and the mid-date of building (reckoned by the number of man-hours spent) was April, 1948. Bonus payments, averaging £30 per house, were made on half the sites, making an average of £15 per house over the whole sample. The average area of a house was 935 ft. super., with an outhouse of 85 ft. super.

On the average site, 25 per cent. of the work was sub-contracted; the remaining 75 per cent. was completed by the main contractor in 2,310 man-hours. In April, 1948, therefore, at an equivalent rate, this would come to 3,080 man-hours for the whole house. This estimate had to be used, since on many sites the only figure available for sub-contracted work was the amount paid by the main contractor to the sub-contractors. It is an accurate statement of the rate at which main contractors worked, but it is thought to overestimate by some 200 the total man-hours actually worked; the average, therefore, probably lay between 2,880 and 3,080.

The corresponding labour costs for the whole house averaged £390. Average material costs were £735, other site costs £90, and total costs £1,215 (excluding office overheads and profits).

Variations from the Average.

There was, of course, considerable variation round these averages, and statisticians, using methods which have been well tried in other fields, but are new to building, isolated the factors which were most consistent in accounting for variations.

Three factors in particular were found to have a significant influence on man-hours, labour costs and total costs: these were the payment of bonuses, the general increase in productivity during 1947 and 1948, and the number of houses in the contract.

Incentives.

Some kind of incentive payment was made on half the sites. The average productivity on these sites was significantly higher than on non-bonused sites. While the effect of different incentive schemes varied, on the average, every £5 of bonus paid per house resulted in a saving of 2 per cent. in man-hours. Some part of the reduction in man-hours was, of course, offset by the cost of the bonus, but, even so, there was an average net saving of at least £2 in labour costs for every £5 spent in bonus. The effect on total costs was even greater—averaging £5—as incentives also tended to reduce other site costs by speeding up the work.

This finding is clearly of great importance to house builders, and it was interesting to find, further, that payment by results, despite fears to the contrary, was not associated with inferior workmanship.

General Productivity.

Although the practice of paying bonuses increased at time went on, it was found that average man-hours fell, and labour costs were reduced on non-bonused as well as on bonused sites. That is to say, in addition to the reduction due to increased use of incentives, man-hours fell on the average by some 2½ per cent. in every three months throughout 1947 and 1948. Labour costs fell, too, by an average of some £10 per year, despite an increase in wage rates. But since material costs during these years rose somewhat more steeply than labour costs fell, the improvement is not reflected in average total costs, which rose by about 1 per cent., or £12 10s. per quarter, during 1947 and 1948.

The consistent increase in productivity found was in all probability due to the easing of material and labour supplies and other similar factors, whose individual effects could not easily be measured in such a sample.

The combined effect of increasing use of incentive payments and improvements in general productivity during these years can perhaps best be illustrated by saying that average man-hours for the site of 20 houses (estimated at the main contractor's rate) fell from 3,200 in January, 1948, to just under 2,700 in January, 1949. Subsequent investigations on work in hand during 1949 seem to indicate that progress has continued although not at the high rate of 1947 and 1948.

Size of Contract.

One other factor stood out as having a significant influence on productivity and costs—the number of houses on a site. Man-hours were lower on large sites. On an average, for every additional ten houses on the site, man-hours fell by 2½ per cent. Labour costs were also reduced by some 2½ per cent., or by £10, for the same increase, and in total costs, the saving was some £12 10s. These figures only hold good for sites of up to 80 houses, the largest investigated in this survey.

While productivity was higher on larger sites, this must not be taken to mean that the large firm, working almost exclusively on large contracts, was necessarily more efficient than the small builder. Indeed, after due allowance had been made for the size of site, the small builder appeared to be as efficient on the small site as the large builder on the large site. This supports the view that there are certain sizes of contract particularly suited to certain sizes of firms.

Area of the House.

The area of the house, of course, accounted for some of the differences found in man-hours from site to site. On the average, each 10 ft. super. of the structure, above 935 ft. super., needed an extra 20 man-hours to build. It was more difficult to isolate the effect of area on costs, but for labour alone, each additional 10 ft. super. cost, on an average, £2 10s.

All these findings are dealt with in detail in the report, which also gives an account of the way in which the data were collected and of the statistical methods used to obtain results. The report also considers other factors, such as the effect on productivity of regional, urban and rural differences, and of variations in site conditions.

Practical Value of Conclusions.

Of particular value to the house builder are the examples given in an appendix to the report, showing how findings may be used as a yardstick by which builders can measure their own performance. By taking the averages for the sample and adjusting these by the prescribed additions or subtractions to allow for the amount of bonus paid per house, for the number of houses on site, for their area, and for the mid-date of building, the builder can discover how far his own man-hours and costs compare with the average results found for sites where conditions were approximately similar to his own. If his man-hours and costs are appreciably less, he can be assured that his own results are better than the average found under such conditions.

The officers of the Division carrying out the investigations received the wholehearted co-operation of the individual builders concerned, as well as of the National Federation of Building Trades Employers and its regional associations.

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Companies Court.

IN the Companies Court on March 13, Justice Wynn-Parry had before him a petition for the compulsory winding up of Oakdale Building Company, Ltd.

Council stated that it was a judgment creditors' petition for £531. The shareholders were two brothers.

There was no opposition to the petition.

An order was made for the compulsory winding up of the Company.

J*

THE CLAIM FOR LIVING SPACE

A Planning Centre Talk

IN the long run development in new towns and extensions of small and medium-sized towns in Britain would cost the nation far less than attempting to rebuild obsolescent cities, was a conclusion drawn by MR. F. J. OSBORN in a paper on "The Claim for Living Space," given at the Planning Centre, London, on March 8. Following is a summary of Mr. Osborn's remarks:—

Let us take, as a round figure, four million people as the number that must be provided with new living space otherwise than in existing built-up areas. How much additional land will that absorb? And does the building of new towns and town-extensions threaten our food supply, our military defence, or our amenities?

To begin with, these people want dwellings. Nine out of ten want houses with some ground-floor rooms and gardens; therefore we shall need space for about a million more such dwellings. To estimate the space they will require, you must study the minimum conditions for decent living, while remembering that quite a few people will insist on something a bit above the minimum. As to that minimum, I stand by 12 houses to each residential acre (arranged over land-units of say five acres or less) as the most crowded density that ought to be offered to the least privileged or poorest of our people. This was the conclusion of the famous Tudor-Walters Committee on housing standards in 1918. It was accepted and applied in inter-war housing policy, public and private. Nothing whatever has happened to invalidate the judgment.

Increasing Density.

Now it is easy to make slight increases in this density; as easy as to dilute milk with water. A gradual depreciation may not be noticed, especially as the customers come from places where the standards are worse. But each time you increase density over 12 an acre, you cut into some precious living amenity. You deprive human families of such enrichment or comfort of daily existence. However slightly, you move housing back towards the grimness, uniformity, lack of privacy and sense of cramping that we associate with slums and bye-law streets.

I fear we may have to exceed the density of 12 houses an acre in the rebuilding of old and crowded centres. In that desperate situation we must go to the just tolerable limit, which I think for family houses is about 18 houses an acre. Some people do say we should, even in new development, tighten the density to 18 an acre, to save food-growing land. That I think would be just wicked, though I know the wickedness comes from want of thought rather than from evil intention.

Moreover, to do so would not increase food production; it would reduce it. If you build 18 instead of 12 an acre, for each 36 houses you "save" one acre. At the same time you reduce the back garden from 200 sq. yds. to less than half. In a garden of 200 sq. yds. (a bit less than a ten-rod allotment) you can grow some vegetables. In a garden half the size you hardly can; it becomes a mere back-yard. So for the one acre of land economised you have lost the produce of 36 home gardens.

No recent figures exist on the produce of home gardens; but I cannot think it is less than 1s. a week on average in gardens at 12 an acre. At that average the produce of 36 gardens is worth, at a retail price, £92 a year. At 2s. a week it is worth £184 a year. Unless the land on which the estate is built is first-class market gardening land, it is very unlikely that commercially it produced more than £20 or £30 a year on the acre saved at issue.

In measuring the claim on land for living space we must bear in mind that not everybody will be willing to live on the basic ration of one-twelfth of an acre. In a new estate there will be some larger houses at lower density, with plots from one-eighth to half an acre, perhaps more. This lowers the average density of new urban development.

Suppose the average works out at 8 houses an acre, how much land would the residential claim require? You will be surprised: 139,000 acres. Great Britain now has 30 million acres of farmland and 18 million acres of woods and rough grazings. To provide decent homes and gardens for 4 million overcrowded people we need of that 48 million acres about a quarter of one per cent., or one acre in 369.

False Economy.

Now suppose you compressed three-quarters of these families at 18 instead of 12 houses an acre—this is really the most that could be done if the movement for higher density prevailed—it would sadly depreciate the living conditions of say three-quarters of a million families. How much land would it save? You will be surprised again: 20,800 acres. Not all this, of course, would be farmland; housing estates are built on land which includes farms, heaths, woods and waste. But if it were all farmland, at the present national average its farm produce might be worth about £400,000 a year. I think the produce lost from home gardens might be worth nearly £2 millions a year at the average of 1s. a week, or £4 millions at 2s. a week. Either side of my comparison may need amendment, but there is a good margin.

If we build three-quarter million houses at 40 an acre instead of 12 an acre, we could in theory "save" 43,750 acres, but the subsidy cost might easily be £750 millions more at the present scale, or, say, to be on the safe side, £10-15,000 more subsidy for each acre "saved." Whatever the cost of reclaiming land or improving farming equipment, it is obvious that much more additional food could be got by reclamation or improvement than by spending money on flat building, even if you ignore the privileges of home gardens.

I will not discuss at length the even more extreme policy, sometimes advocated, of packing the city millions in block flats to economise land. That flats are not suited to children and aged persons needs no demonstration to anyone who has observed the habits of these creatures.

Recent multi-storey flats in London, with a floor area of 650 sq. ft., cost in public subsidies nearly five times as much as normal family houses half as large again (1,000 sq. ft.). The flat subsidy is £2,910; the house subsidy £609.

When urban developments occur on new land, space is needed for other living purposes as well. There is not much argument about the space needs for shops, offices, cultural buildings, churches, clubs, pubs, and the like.

More contested is the assessment of the rations of space needed for playing-fields, local parks and schools. The National Playing Fields Association, after prolonged study, set a standard for recreation space of seven acres a 1,000 of population. I think this is rather too little. Taking playing fields and local parks together, I think a fair claim is about ten acres a 1,000. How far we are from even the N.P.F.A. minimum is shown by the case of London County, where the total open space is now 2 acres a 1,000, the playing fields about half an acre, and the ideal set by the London Plans only 4 acres a 1,000, with three more somewhere in the distant blue.

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PLANNING LONDON'S INDUSTRY

Manufacturers' Help Sought

To assist the London County Council in preparing the plan upon which all future development in the county will be based, a short *questionnaire* has been circulated by the London Chamber of Commerce to about 6,500 manufacturers in the county. The Chamber states that the soundness of the plan will depend on the goodwill of the industrial community in providing the information for which the L.C.C. asks.

The *questionnaire*, which has been sent only to industrialists, contains questions relating to the nature of the business, floor area occupied, situation and the number of workers. Recipients are also asked to state whether their premises are satisfactorily located and, if not, what conditions they require, whether extensions or removals are desired, what methods of transport they use for inward and outward goods traffic and whether they consider them adequate. An inquiry is also made regarding the existence of a sports ground.

The completed *questionnaires* will be handed over to the L.C.C. and while the plan is being drawn up a close liaison will be maintained between the council and the London Chamber of Commerce land replanning committee whose membership includes representatives of the Federation of British Industries (London and South-Eastern Region).

"WALLS AND WALL FACINGS"

IT has often been remarked that the admirable work of the Building Research Station reaches the members of the building industry, architects included, too seldom and too slowly; also that it does not percolate rapidly enough into manuals of building construction. Mr. Nield's proclaimed object is "to bridge the gap between the educational textbooks and recent research information." It is a most praiseworthy purpose, well worth attempting, but extremely difficult to achieve, and the attempt is not altogether successful.

The author undoubtedly knows his subject, indeed his book* is full of useful and up-to-date information which is certainly not yet to be found in most textbooks. It also contains 18 constructional drawings which are valuable, notably those illustrating cavity walls and glass facings. There are not many misprints, but the words "Tredgold," "shear" and "arris" are wrongly spelt, while it grates on a civilised ear to hear that "data *is* being collected." A few words new to the dictionary appear, among which "constructability" is legitimate because self-explanatory; whereas "indurability," in the sense of "non-durability," is certainly not.

Inevitably the author follows, and frequently quotes, Fitzmaurice's *Principles of Modern Building*, which traverses the same field; but that important work was published 10 years ago, and much has been discovered since. Thus Mr. Nield is able to add information culled from the Post-War Building Studies, the Codes of Practice, and the British Standard Specifications; supplemented from other sources and from his own experience. Particularly does this apply to heat insulation, the properties of building boards, and glass bricks. His note that bombing revealed the absence of ties in cavity walls is certainly a topical touch. Among other interesting statements we note that "no satisfactory cement rendering seems obtainable for urban areas" (p. 64); that fire-risks are increasing "with the use of white claddings" (p. 72); that stretcher bond in cavity walls is monotonous but inevitable (p. 142); and that a new material, vermiculite, seems capable of great possibilities as a lightweight aggregate (p. 216).

Yet the book fails to make a popular appeal to the average reader in the architectural profession and the building industry. Its division into two sections, "Theory" and "Practice," leads to duplication and repetition.

One gets the impression that a mass of valuable information has been patiently collected, but then assembled too hastily, with inadequate revision and simplification and pruning. Many passages are exceedingly difficult to understand, others are diffuse or abstruse or superfluous. For example, on p. 166, dealing with concrete, there are references to "honeycombing," "segregation," and "laitance layers." How many readers could define those terms? On p. 245 one encounters "grog," a component to clay tiles, again without explanation, and this word does not appear in the index. These examples are taken from the last third of the book, which is more carefully written and therefore easier to read than the rest; but any person endeavouring to temper the mysteries of building research to the shorn lamb in the industry must make allowance, as few experts have yet done, for the fact that the average reader is lamentably unscientific and often tolerably busy.

M. S. B.

* WALLS AND WALL FACINGS. By Denzil Nield (*Architectural and Building Series*). Pp. 276. Illustrated. (E. and F. N. Spon, Ltd.) 18s. net.

TWO M.O.W. ADVISORY LEAFLETS

Concreting and Bricklaying in Cold Weather.

"CONCRETING IN COLD WEATHER" and "BRICKLAYING IN COLD WEATHER," Nos. 7 and 8, respectively, in the series of Ministry of Works advisory leaflets, are now available.

Leaflet No. 7 describes simple steps to be taken under frosty conditions to keep concreting work going and to prevent damage to green concrete. Notes are given on different types of cement and on the use of calcium chloride for speeding up the setting and hardening of Portland cement. Special precautions necessary for very severe weather (below freezing point) are described. The information is summarised at the end of the leaflet, in four useful tables for easy reference. Leaflet No. 8 describes precautions which enable bricklaying to go on in cold weather, and the rather more elaborate steps to be taken in severe frosty weather. Illustrations show simple methods of warming brickwork, mortar and ballast.

Like previous leaflets in the series, Nos. 7 and 8 have been designed mainly to meet the need of the small builder, clerk of works, foreman and craftsman. They supply, in practical and convenient form, information about the results of research and the latest developments in building practice. These leaflets, and back copies dealing with other subjects, are obtainable from H.M. Stationery Office (Post orders to P.O. Box No. 569, London, S.E.1), or through booksellers, at 2d. each.

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NATIONALISATION OF BUILDING INDUSTRY

Operatives Prepare Scheme

THE National Federation of Building Trades Operatives has prepared a detailed scheme for the nationalisation of the building industry.

Acting on the terms of reference given at last year's annual conference at Porthcawl, the Executive Committee has prepared the scheme as a first step towards nationalisation. The scheme, which is now in the hands of the printers, makes provision for the establishment of a National Building Corporation.

An official of the N.F.B.T.O. informed a representative of *The Builder* on March 15 that the proposals, which will be placed before this year's conference at Ayr on June 20, include the formation of a Ministry of Building, in place of the present Ministry of Works. "This new Ministry," he said, "will be responsible for the work of the National Building Corporation, which will be composed of recognised experts in building matters, and not civil servants. In turn, the National Building Corporation will be responsible for directing and organising the work of its own labour force.

"No decisions have yet been made as to who will be members of the Building Corporation or of its numerical strength, nor has any decision been made regarding the ultimate strength of the Corporation's labour force."

It is anticipated that the Executive Committee's scheme will be generally circulated in printed form before the annual conference takes place in June.

SHOREHAM REDEVELOPMENT

THE Minister of Town and Country Planning has now formally approved the Shoreham and Lancing Beaches Part Development Plan, the necessary seal and signature having been appended to the formal documents on February 21, last. The Comprehensive Development Plan covers an area of approximately 550 acres, of which about 200 will be developed for residential purposes. Before the war the beaches were developed in part by bungalows, mainly constructed of short-lived materials, and used principally for holiday purposes. Over 400 of the buildings were demolished in 1941-1942 for military defence purposes.

The West Sussex County Council unsuccessfully promoted a Bill in the House of Lords in 1946 to deal with this area. Subsequently, adequate general powers became available under the 1947 Town and Country Planning Act, and the Plan was submitted to the Minister in October, 1948, in advance of the main plan for the county. A public local inquiry was then held. The plan is now approved generally on the lines submitted by the County Council, the main amendment being the exclusion of certain lands in the freehold ownership of other local authorities. The area designated for compulsory acquisition amounts to approximately 450 acres.

The West Sussex County Council propose to redevelop the area mainly as a residential area, and are extending the open spaces. Their ultimate plan will leave the sea front open and available for the general public practically all the way from the harbour entrance to the borough of Worthing. Building plots will be made available and will be let on long lease. The County Council have already established an estate office in the area, in order to deal with all inquiries.

"NEW METHODS OF HOUSE CONSTRUCTION"

Second Report on Man-power and Materials

"NEW METHODS of House Construction—Second Report,"* published for the Ministry of Works by H.M. Stationery Office, and now on sale, describes investigations completed by the Ministry since 1947 into the possibilities of economy of man-power and materials using non-traditional building methods.

A previous Report†, published in 1948, detailed the results of similar investigations (over a period extending from 1945) into nine new types of house construction. Using the same methods of observation, based on modern statistical techniques, the present Report deals with another five new types. It compares these houses, as regards quantities of materials used, number of man-hours, and costs, with the traditionally built brick house for "yardstick."

Of the five types examined, two are characterised by steel-frame construction, one is of "no-fines" concrete cast in situ, one is built of storey-height precast hollow concrete panels, and the fifth —a slight modification of a type examined in the first Report — has walls of simple posts to which are bolted inner and outer framed concrete panels.

Statistical tables in the Second Report give comparable data for: critical materials (coal, steel, cement) used in the five types; working times (man-hours) on site and in factory, for the various types and for stages of construction; and costs, similarly broken down. The house built of storey-height hollow panels gave outstanding results, both as to lower costs and fewer man-hours, compared with the traditionally built house.

In general, the conclusions drawn from the Second Report reinforce those given in the previous Report. Important economies in man-power can be made by the use of methods of the kind examined. But, because the cost of making prefabricated parts on a small scale is high, the reduced labour costs do not always produce lower total costs; nor it is yet possible to foresee with certainty what these costs will be when production is on a larger scale.

In particular, results have again shown that success depends on thorough and appropriate organisation of all stages of manufacture and erection.

THE HOUSING DEBATE

"Expenditure on Subsidies to Continue."

"Two things are clear from Monday's debate on housing in the House of Commons," said MR. ROBERT O. LLOYD, President, N.F.B.T.E., at Manchester on March 15. "First, that a large number of would-be owner-occupiers, whatever the housing needs of their families, must go on waiting for new homes, and that the already crippling expenditure from the rates and taxes on housing subsidies will, therefore, continue to mount up unnecessarily.

"Second, that not more than 200,000 houses are to be built during 1950. This is a Government decision and it is no use for the public to grumble at the building trades employer or his operative because the number is not bigger."

* Special Report No. 10 of National Building Studies. (Price 9d., including postage 10d.)

† Special Report No. 4 of National Building Studies, published by H.M. Stationery Office, price 1s. (1s. 2d. including postage).

CLERKS OF WORKS' PROVIDENT INSTITUTION

Annual Dinner and Dance

THERE was an excellent attendance, some 450 being present, at the annual ladies' night dinner and dance of the Provident Institution of Builders' Foremen and Clerks of Works held at the Café Royal, London, on March 11. It was the first event of its kind to be given by the Institution since before the war. Mr. P. Fotheringham-Parker was in the chair.

Responding to the toast of "The Chairman," proposed by MR. E. BYWATER (president, P.I.B.F.C.Wks.), MR. FOTHERINGHAM-PARKER began by expressing his gratitude at being supported by such a full and representative gathering, and went on to thank those who had answered his appeal for funds. The total amount he had received to date was £775—not quite so much as he had expected to announce—but he hoped that by the end of the month the sum would have grown to nearer the £1,000 "target" which he had set himself.

After praising the work of the committee responsible for organising that evening's function, and, in particular, the efforts of Mr. Arthur C. Taylor, the social secretary, the speaker recalled that the Institution was founded 108 years ago, and was known in the days of its infancy as the "Institution and Asylum of Builders' Foremen." The first dinner was held in 1862, at which the Lord Mayor of London of that day presided. In 1850, the Institution paid its first pensioner, a widow, £7 8s. a year. To-day there were 28 male and 25 female pensioners, costing nearly £1,700 a year. Altogether, since the inception of the Institution, over £54,000 had been paid out in pensions.

The first recorded capital investment, concluded Mr. Fotheringham-Parker, was £100 in 1846; to-day, the invested capital of the Institution amounted to £14,500, but, owing to the present rates of interest, the growing need for pensions and relief could be met only through the generosity of voluntary contributors.

The duties of foremen and clerks of works and some of the benefits they received from the Institution were referred to by SIR THOMAS BENNETT, C.B.E., F.R.I.B.A., who proposed the toast of "the Institution." Mr. Arthur C. Taylor responded. The toast of "The Ladies" was proposed by Mr. L. Smart, and Mrs. S. J. Squire responded.

Dancing and a cabaret followed.

NEWS IN BRIEF

Year Book.

The Institution of Structural Engineers have recently issued their Year Book 1949, which contains a list of members corrected to October 1, 1949. Price to non-members is 5s.

Christ Church, Beckenham.

In an illustrated article dealing with the restoration of Christ Church, Beckenham, Kent, which appeared in our February 17 issue, the name of Harrison and Co. (Builders' Merchants), Ltd., of Leytonstone, E.11, who supplied the bricks used on this job, was omitted.

Building Employment Figures.

According to the latest figures published by the Ministry of Labour, the number of persons employed in the building and civil engineering industries at the end of January was 1,471,000. This figure is 9,000 above that for the previous month and 9,000 below that for December, 1948.

Firm's Appeal Dismissed.

The Minister of Town and Country Planning has dismissed the appeal by Messrs. Paripan, Ltd., Windsor-road, Egham, Surrey, against the refusal of the Surrey County Council to permit alterations and enlargements to the Paripan Works in Windsor-road, Egham. The site is in the green belt adjacent to Runnymede and near-by Cooper's Hill, where stretches of open country have been acquired for the public enjoyment.

Examination Results.

On January 27, 1950, the external examiner of the Town Planning Institute gave his final award on the theses so far submitted by members of the diploma course, 1948-49. The results are as follows:—*Honours Diploma*: G. D. Frankish, A.R.I.B.A. *General Distinction*: D. P. Freeman, A.R.I.B.A.; N. R. F. Collins, A.R.I.B.A. *Distinction in Theses*: E. Clunies-Ross, A.R.I.B.A.; D. N. Gupta, B.E. (Calcutta); H. M. Reid, A.R.I.B.A., B.A. *Pass*: R. E. Carter, A.R.I.B.A.; J. A. Griffiths; K. Z. Hussain, A.R.I.B.A.; D. A. W. Lovejoy, A.R.I.B.A.; V. H. Naidu, B.Eng. (Mysore), A.R.I.B.A.; Neroli Wilkins, M.A. Geog. (New Zealand); V. W. Worley, A.R.I.B.A.; J. P. Blockley, A.R.I.B.A.; M. Kirsteen Borland, A.R.I.B.A.; June Gardner, A.R.I.B.A.; J. N. Graham, A.R.I.B.A.; H. R. Hyne, A.R.I.B.A.; R. R. Lockyer, A.R.I.B.A.; H. V. Sprince, A.R.I.B.A.

Builders' Poster Campaign.

Because it considers that in the past five years the achievements of the private enterprise builder have tended to be obscured or overlooked, and that opportunities for home ownership have been too few, the Eastern Federation of Building Trades Employers has decided to launch a poster campaign prepared by the Director. Three posters have been prepared, 10,000 of each being distributed for display in East Anglia. The first deals with "Home Ownership," the second is entitled "Building Facts," and the third, for display on members' lorries, bears the caption: "We won't get far with the brake on—take the brake off the Building Industry."

The posters on home ownership and building facts are being reproduced in handbill size for enclosure by members of the Federation in correspondence, etc. In addition, a quarter of a million sticky labels and 10,000 strips for rear car windows have been printed. These carry the slogan: "Private enterprise means more and cheaper houses."

TRADE NEWS

Centenary Year.

The Abbey National Building Society have just published the report and statement of accounts for the year ended December 31, 1949, which cover their centenary year.

Applications of Cement Decking.

The Universal Asbestos Manufacturing Co., Ltd., have recently published a booklet entitled "A Story from Staythorpe." It illustrates orthodox and new applications to which Universal asbestos cement decking is being put at the Staythorpe power station now being built near Newark.

Glass Manufacturers' London Showroom.

Messrs. Pilkington Bros., Ltd., have just opened their London showroom at Selwyn House, Cleveland-row, St. James's. Formerly bomb damaged, Selwyn House has been reconstructed to plans by Mr. George Fairweather, F.R.I.B.A. The interior designs of the showroom, reception hall and conference room are by Mr. Kenneth Cheesman, L.R.I.B.A., who was formerly on the staff of Pilkington Bros. The showroom has been converted from a first-floor Louis XVI drawing room of questionable authenticity to the display of glass as a contemporary building material. The exhibits displayed are as widely different as a counter-balanced sash window 9 ft. in width, a string of high-tension insulators, and a bathroom in "Vitrolite."

Company's Celebration.

Messrs. Aga Heat, Ltd., recently celebrated three things—the coming of age of the company, founded in 1929; the opening of their new showroom at 20, North Audley-street, W.1, which was designed by Mrs. Darcy Braddell; and the introduction of the Agamatic boiler, the latest addition to the range of Aga products, with which the company hopes to answer the age-old problem of securing domestic hot water. The Agamatic boiler, the firm states, has been designed to give its maximum output continuously over a period of at least eight hours without any attention, and its efficiency—i.e., the heat generated and passed into the water—is 70 per cent. at all times. It can be installed either as a free standing unit or alongside an Aga domestic cooker, being of the same depth, height, colour scheme and finish.

Plastics Exhibition.

A private exhibition of "Bakelite," "Warerite" and "Vybak" plastics was opened by Mr. H. V. Potter, B.Sc., F.R.I.C., M.I.Chem.E., chairman and managing director of Bakelite, Ltd., on March 8, at the British Colour Council. The central feature was the Bakelite, Ltd., travelling exhibition which has recently returned from the Continent. A number of articles too large to send overseas were included in the exhibition on this occasion.

The self-contained units which comprise the travelling exhibition give an indication not only of the company's products but also of the application of plastics in the industrial sphere. One series of these units is arranged in product groups. Behind shelf displays of Bakelite moulding materials, laminated sheet, rod and tube, resins, varnishes and cements, Warerite decorative laminated plastics and Vybak resins and calendering and extrusion compounds, are panels which illustrate in a graphic fashion the essential properties of these plastics. In the other series, the units show applications for plastics industry by industry.

THE SCOTTISH BUILDER

NEW BUILDINGS

Bellshill.—Plans to be prepared for new halls and offices, etc., to be erected at Gladstone-st. and for which the architect is Lt.-Col. James Nickelson, 147, Blythswood-st., Glasgow, W.C.2.

Biggar.—Plans to be prepared for extensions and alterations, etc., to bakery at 96-103, High-st., for which the architects are Small & Ewart, 94, High-st., Biggar, Lanarkshire.

Dumbartonshire.—Plans in hand for new workshops at South-st., Scolstoun, by Charles Connell & Co., Ltd., Scotstoun Shipbuilding Co., Ltd., from plans prepared by their own staff.

Glasgow.—Plans in hand for new stores and offices at Cadogan-st. to be erected from their own plans by the Typesetting Services, Ltd., 91, Cadogan-st., Glasgow, C.2. Plans in the hands of the Tar Macadam and Asphalte Co., Ltd., 44-52, Bilbon-st., Rutherglen-rd., Glasgow, E.C.5, for new office buildings and for the re-erection of the plant repairing buildings.

Glasgow.—Plans to be prepared for British Linen Bank at The Great Western-rd., for which the architects are Watson, Salmond & Gray, Central Station-bldgs., 111, Union-st., Glasgow, C.1.

New Stevenston.—Plans to be prepared for new halls, etc., which are to be erected at Woodside-st. and for which the architect is William Cochrane, Barachan, 50, Carfu-st., New Stevenston, Lanarkshire.

Stonehouse.—Plans are to be prepared for new additions, etc., classrooms and other accommodation at the public school, for which the architect is William Watt, Albert-st., Motherwell-Wishaw.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

MARCH 20.

†***Peterborough T.C.**—40 houses at Eastfield estate. City E. & S., Town Hall. Dep. £2 2s. Tenders by April 3.

MARCH 22.

†***Chislehurst and Sidcup U.D.C.**—182 houses at Edgebury estate. E. T. Chater, C., Council Offices, Sidcup-pl., Sidcup. Dep. £5 5s. Tenders by April 26.

†***Norfolk E.C.**—Erection of timber hut at Redenhall Secondary Aided School. W. O. Bell, Chief Ed. Officer, Stracey-rd., Norwich. Dep. £2.

MARCH 23.

†***Hampshire Police Authority.**—One police house at Southbourne-rd., Lymington, and three police houses at Cambridge-rd., Lee-on-Solent. County A., The Castle, Winchester. Dep. £1 1s. each

†***Northampton C.B.** — Eight dwellings (crescent block) at King's Heath. Boro' A., Guildhall. Dep. £2 2s. Tenders by April 15.

†***Surrey C.C.**—Alterations and extensions at School of Art, Farnham. County A., County Hall, Kingston-on-Thames. Dep. £2 2s.

MARCH 24.

Breconshire C.C.—Alterations and additions to requisitioned buildings at Builth Wells County Grammar School. County A., Rhyd Offices, Brecon.

***Cardiganshire E.C.** — School canteen at Aberystwyth. G. R. Bruce (A.), County A., County Hall, Aberavon. Dep. £1.

†***Dorset C.C.**—Extensions at Broadway Secondary Modern School. C., County Hall, Dorchester.

MARCH 25.

Argyll T.C.—Reconstruction and extension of Craighouse Pier, Jura, in open piled r.c. work. County E., Lochgilphead, Argyll. Dep. £5 5s.

MARCH 28.

***Bridgwater and Albion Rugby Football Club.**—Supply and erection of permanent grandstand. J. Pippin, Hon. Sec., 52, Camden-rd., Bridgwater, Som.

Cudworth (Yorks) U.D.C.—Erection of 22 s.d. houses on Sidcup and Churchfield-ter. sites. J. Hinchcliffe, E. & S., Council Offices, Cudworth, nr. Barnsley. Dep. £2 2s.

***Wembley T.C.**—Public convenience, Church-la. recreation ground, Kingsbury. B.E. & S. Dep. £1 1s.

MARCH 29.

†***Mitcham T.C.**—103 dwellings (section 1) at Elm Nursery estate, London-rd. B.E. & S., Town Hall. Tenders by April 26.

MARCH 30.

Newcastle-upon-Tyne C.C.—160 houses on unit No. 3 of Longbenton housing estate. City A., 18, Cloth Market, Newcastle-upon-Tyne, 1.

MARCH 31.

†***Cambridge T.C.**—120 lock-up garages, various estates. B.E. & S., Guildhall. Dep. £2 2s.

†***Carmarthenshire C.C.**—Adaptations and additions at Golden Grove Mansion, near Llandilo. County A., County Hall, Carmarthen. Dep. £5.

***Drayton R.D.C.**—Conversion of hutments at Manor Camp, Childs Ercall, into approx. 50 dwellings. Hind & Brown (L. & A.), District Bank-chbrs., 2, Market-st., Hanley, Stoke-on-Trent. Dep. £2 2s.

***Durham County Police Authority.**—One pair of police houses with office at Derwent-st., Blackhill. County A., Court-la.

***Durham County Police Authority.**—One pair of police houses with office at Park-rd., South Moor, Stanley. County A., Court-la.

Plympton St. Mary R.D.C.—Construction of r.c. water tower. E. & S., Council Offices, Plympton, S. Devon. Dep. £2 2s.

APRIL 1.

†***Widnes T.C.**—Temporary classroom block at Wade Deacon Grammar School. Boro' A., Brendan House, Widnes-rd.

APRIL 3.

***Harpenden U.D.C.**—26 houses at Batford estate, Harpenden. C., Harpenden Hall. Dep. £1 1s.

***Ware R.D.C.**—Four bungalows at Widford Housing site. S., 97, New-rd., Ware. Dep. £1 1s.

APRIL 4.

***Evesham T.C.**—42 houses at Fairfield. Pemberton & Bateman (F. & A.), 21, Vine-st., Evesham. Dep. £2 2s.

Mossley B.C.—Erection of 40 houses on Micklehurst site. Howard and Benson, FF.R.I.B.A., 88, Mosley-st., Manchester, 2. Dep. £2 2s.

APRIL 5.

Knighton U.D.C.—Eight houses, Ludlow-rd. site. S. N. Shrimpton & Son, 18, Bridge-st., Knighton. Dep. £2 2s.

APRIL 6.

***Aycliffe Development Corporation.**—83 houses at Clarence Farm East, Contract No. 21. A. W. Thomas, General Manager, Simpasture, Newton Aycliffe, Co. Durham. Dep. £2 2s.

†***Isle of Wight Standing Joint Committee.**—Single police houses at Seaview, Yarmouth, Ryde and Cowes. F. H. Booth (A.), County A., County Hall, Newport. Dep. £1 1s. each project. Tenders by May 4.

APRIL 12.

***Brighouse T.C.**—30 houses at Stoney-la., Lightcliffe. B.E. & S., Commercial-st.

***Eton U.D.C.**—Seven shops with flats over at Meux Field site, Eton Wick. C., Council Offices. Dep. £2 2s.

THE INSTITUTE OF BUILDERS

EXAMINATIONS

The next Examinations for the Institute's Diplomas will be held as foHows:—

Licentiate Diploma Examination.

September 4th, 5th and 6th, 1950.

Associate Diploma Examination.

September 4th, 5th, 6th and 8th, 1950.

Latest date for sending in applications:—June 30th, 1950.

Syllabuses and Entry Forms will be forwarded free upon application to:—

The Secretary,
The Institute of Builders,
48 Bedford Square,
London, W.C.1

from whom also may be obtained past examination papers with drawings at 10s. a set for either examination.

***Walsall C.B.**—Adaptation, Footherley Hall, Shenstone, as residential nursery. M. E. Habershon, B.E. & S. Dep. £3 3s.

APRIL 13.

***Southgate B.C.**—Brick boundary wall at Barrowell Green estate. B.E. & S. Dep. £2 2s.

MAY 9.

***Bournemouth C.B.**—115 houses at Kinson estate. Boro' A. (Room 98). Dep. £1 1s.

JUNE 30.

State Rivers and Water Supply Commission, Victoria.—Construction of the Big Eildon Dam at Eildon in the State of Victoria, Australia. Specifications, etc., from Secretary, State Rivers and Water Supply Commission, 100-110, Exhibiton-st., Melbourne, C.1, Victoria, Australia, or the Agent General for Victoria, Melbourne-pl., Strand, London, price £10 10s. per set. Dep. of £A1,000, payable at Melbourne, must be lodged with tender.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

MARCH 24.

Breconshire C.C.—Redecoration of 100 rooms at Gwernyfed Secondary Modern School, Three Cocks, Breconshire. County A., Rhyd Offices, Brecon.

MARCH 27.

Harrow U.D.C.—External painting and renovation of council houses at Pinner Hill (285), North Harrow (53) and Rayners-la. (88). E. & S., Council Offices. Dep. £1 1s.

***Thurrock U.D.C.**—External painting of houses on the various estates. E. & S., Council Offices, Palmer's-ave., Grays. Dep. £1 1s.

MARCH 30.

***East Retford T.C.**—(1) Internal decoration of ballroom, Council Chamber, and ante rooms at Retford Town Hall; (2) external decoration of Town Hall; (3) external decoration of Municipal Offices; (4) external painting of approx. 40 houses. B.S.

MARCH 31.

Newton-le-Willows U.D.C.—E. & S. (Materials.)

APRIL 8.

Middleton B.C.—E. & S. (Materials).
Stocksbridge U.D.C.—S. (Materials).

APRIL 17.

Harpenden U.D.C.—E. & S. (Materials.)

ROADS, SEWERAGE AND WATER WORKS

MARCH 22.

†Watford B.C.—Roads and sewers (contract No. 3) at Woodside housing estate. B.E. & S., Town Hall. Dep. £2 2s.

MARCH 25.

Chippenham B.C.—Site preparation work at Pew Hill housing site. B.E., 10, Market-pl. Dep. £3 3s.

MARCH 27.

†Warwick R.D.C.—Construction of houses, roads and sewage disposal works at Broomhall-la., Lapworth. C., Council Offices, Waterloo-pl., Leamington Spa. Dep. £2 2s.

MARCH 29.

Harrow U.D.C.—Construction of hard core roads and sewers at Northolt Racecourse housing estate, Roxeth. S., Council Offices, Uxbridge-rd., Stanmore, Middx. Dep. £2.

Worcestershire C.C.—Making-up of Morton-ave. and Morton-rd., Fernhill Heath, near Worcester. S., County-bldgs., Worcester. Dep. £2 2s.

MARCH 30.

Weston-Super-Mare B.C.—Construction of roads, footpaths, surface-water and foul sewers. B.E. & S., Town Hall. Dep. £2 2s.

MARCH 31.

Darlaston U.D.C.—2,500 sq. yds. of pitched carriageway, foul water and surface water sewers at Bentley housing site. E. & S., 48, Church-st. Dep. £2 2s.

Filey U.D.C.—Construction of roads and sewers, Muston-rd. housing site. S., Council Offices. Dep. £2 2s.

Penarth U.D.C.—Construction of pitched limestone carriageway and laying of soil and surface water sewers at St. Cyres housing site. E. & S., Council Offices, "West House," Stanwell-rd. Dep. £2 2s.

APRIL 1.

Friern Barnet U.D.C.—Making up of Torrington-ave., Torrington-gr., and Bedford-cl. E. & S. Town Hall. Dep. £2 2s.

†Thingoe and Thedwastre R.D.C.—Construction of 39 miles of water mains. Con. Engnrs., Lemon & Blizard, 59, Tufton-st., Westminster, London, S.W.1. Dep. £5 5s.

APRIL 3.

Berkshire C.C.—Making-up of Beech Hill-rd. (3 sections) and Galton-rd., Sunningdale. K. P. Brow, M.Inst.C.E., Shire Hall, Reading.

Oxford T.C.—Construction of two cast-iron pipe inverted siphons for foul sewage under the Thames. J. Campbell Riddell, B.Sc., A.M.I.C.E., City E., Town Hall. Dep. £2.

Swadlincote and Ashbys Joint Water Board.—Laying and jointing of 10 miles of water mains.

"THE BUILDER" PRICES

LEAD PRODUCTS

Following the reduction to £88 per ton in the Government-controlled price of pig lead as announced by the Ministry of Supply, Associated Lead Manufacturers, Ltd., Ibex House, Minories, E.C.3, announce the following new basis prices of their lead products, effective from 8 a.m., March 10, 1950.

	To-day's Basis Price per ton. £ s. d.
Genuine English Dry White Lead (Basis in 1 x 8 cwt. cask)	116 5 0
Genuine Ground English White Lead (Basis in 1 x 5 cwt. cask)	136 10 0
Genuine Refined English Red Lead (Basis in 1 x 5 cwt. cask)	106 15 0
Genuine English Powdered Litharge (Basis in 1 x 5 cwt. cask) ...	106 15 0
Genuine Refined English Red Lead Ground in Oil (Basis in 1 x 5 cwt. cask) ...	129 15 0
English Sheet Lead (Basis for 2-ton lots)	105 5 0
English Lead Pipe (Basis for 2-ton lots)	106 10 0
English Lead Shot (Basis for 1-ton lots)	116 5 0

Pick, Everard, Keay & Gimson, Engnrs., 6, Millstone-la., Leicester. Dep. £2 2s.

APRIL 5.

Bridge-Blean R.D.C.—Water mains extensions at Chislet and Sturry. Building S., Council Offices, Old Dover-rd., Canterbury.

Bromley (Kent) B.C.—Construction of roads at Coppice estate. Boro' E., Municipal Offices, Bromley. Dep. £2 2s.

Sherborne R.D.C.—Laying of asbestos cement main. Con. Engnr., Aubrey J. Allen, F.R.I.C.S., Half Moon-st., Sherborne, Dorset. Dep. £3 3s.

Street U.D.C.—Construction of asbestos cement water main. Lemon & Blizard, 24, Lockyer-st., Plymouth. Dep. £3 3s.

APRIL 8.

Guildford B.C.—Roads and sewers at housing site, Bushy Hill, Merrow. B.E., Municipal Offices, High-st. Dep. £5 5s.

APRIL 12.

Carshalton U.D.C.—Making-up or Beechwood-ave. E. & S., Stone-ct., The Grove, Carshalton. Dep. £2.

"STIC B"

STONE COVERING

A DECORATIVE AND WATERPROOFING

TREATMENT FOR CONCRETE CEMENT RENDERING BRICKWORK, ASBESTOS, ETC.

"STIC B" PAINT SALES LTD.

69, VICTORIA STREET, S.W.1

WHITEHALL 9958

APRIL 15.

Alcester R.D.C.—Provision, laying and jointing of spun-iron and asbestos cement water mains, and construction of two r.c. reservoirs. J. D. & D. M. Watson, MM.I.C.E., 18, Queen Anne's-gate, Westminster, S.W.1. Dep. £10 10s.

APRIL 17.

Thornbury R.D.C.—Sharpness Drainage, contract No. 1. John Taylor & Sons, Artillery House, Artillery-row, Westminster, S.W.1. Dep. £5 5s.

APRIL 18.

Hebburn U.D.C.—Main outfall sewer, contract No. 2 (Mill-la. extension). Eric G. Lediard, chartered civil engineer, 4, Eldon-sq., Newcastle-upon-Tyne, 1. Dep. £5 5s.

APRIL 19.

Newport Pagnell U.D.C.—Construction of sewage disposal works and sewage pumping station. Pick, Everard, Keay & Gimson, engineers, 6, Millstone-la, Leicester. Dep. £2 2s.

NO DATE.

Wing R.D.C.—Construction of two tarmacadam roads at Great Brickhill and Aston Abbotts, Bucks. H. A. Rolls, chartered architect, 15, Bridge-st., Leighton Buzzard. Dep. £2 2s.

GENERAL BUILDING WORK (LONDON)

Hammersmith.—SHOP AND OFFICES.—Farnham and Coigley, chartered surveyors, 9, Kensington Church-st., W.8, have made application for erection of shop, offices and two-storey building at rear of 205/7, Hammersmith-rd., W.6.

Hendon. — FACTORY EXTENSIONS. — V. J. Wenning, L.R.I.B.A., 43, Doughty-st., W.C.1, has applied to make an extension and alterations to factory at 30, Rushgrove-ave, N.W.9, for D. M. Steele, Ltd.

Hendon.—FLATS.—Sturt and Tivendale, surveyors, 61, Highgate High-st., N.6, have applied for T.P. approval to the erection of 6 flats and 6 garages at 967, Finchley-rd., N.W.11.

Hendon.—SCHOOL.—M.O.E. have approved a proposal for the erection of new junior school with dining accommodation on the site of the Dollis Primary School. The County Architect has been asked to proceed with the work as soon as possible.

Hendon.—FLATS.—J. C. S. Soutar, F.R.I.B.A., 8, William IV-st., W.C.2, has prepared plans for 84 flats to be erected on housing site No. 25, Edgware-rd. (Hyde Cottage).

Mill Hill.—FLATS.—Architects' dept. of Hendon B.C. have prepared plans for 44 flats on housing site No. 26, Abercorn-rd.

Poplar.—FLATS.—T.P. and Housing Comm. have approved scheme for erection of 17 flats on site adjoining Commodore House, Poplar High-st. Plans by Council's architects' dept.

Wembley.—FLATS.—Housing and T.P. Comm. have approved revised layout plan, submitted by Boro' E. & S., for 114 flats on land north of King's-dr.

Wembley.—FACTORY.—Allnatt (London), Ltd., building contractors, Chase estate, Park Royal-rd., N.W.10, propose to erect factory at Athlon-rd.

Wembley. — FLATS. — Robert Atkinson, F.R.I.B.A., 13, Manchester-sq., W.1, are the architects for a block of 12 flats on a site in The Avenue at the Junction with Corringham-rd.

Wembley.—PROCESSING BUILDING.—E. H. Firmin, A.R.I.B.A., 10, Manchester-sq., W.1, is the architect for a new processing building at the Celotex Factory in Beresford-ave.

(PROVINCIAL)

Blackpool.—B.C. approved plans for:—7 prs. of Boarding-houses at Carlyle-av. for Armitage & Brearley, Ltd., Colin-av.; 3 prs. of boarding-houses at Napier-av. for J. Beardshaw, 20, Queen-st., Blackpool.—E.C. received approval for inclusion of following schools in 1950 programme:—Toronto-av. prim.: Arnold High School for Girls, and Little Marton St. Paul's County Infants'. Boro' E., H. S. Hamilton.

Brighouse.—B.C. propose further 30 houses, Stoney-la. estate.—Approved extensions to Well-holme Park day nursery for C.C. Boro' E., H. A. Sneezum.

Cheshire.—C.C. to acquire site at Field Bank-rd., Macclesfield, for a fire station; approved adaptation of Hulme Hall, Cheadle Hulme, as aged persons' home at £7,000—approved draft scheme for ambulance depot, Chapel-rd., Sale—to prepare plans for welfare centre at Great Sutton-rd., Great Sutton, and a clinic centre at Church-la., Weaverham. County A., E. M. Parkes, F.R.I.B.A.

Chester-le-Street.—R.D.C. propose to build a retreat for 36 old people at Barlow, with communal centre and laundry. Architect, F. Bowman, Council Offices, Chester-le-Street, Durham.

Darlington.—T.C. to spend £8,000 converting old female hospital into accommodation for 22 people to plans by Boro' A. M.H. approval is being sought.—T.C. has decided that a site in Victoria-rd. immediately to rear of Back Waverley-ter. should be used for erection of new corn exchange.—T.C.'s programme of capital expenditure includes £6,050 for a midwives' hostel at Woodlands-rd. and £52,000 for a new health centre in Yarm-rd.—W. Walker & Son,

decorators, West Auckland-rd., are to build a warehouse.—Darlington Railway Plant and Foundry Co., Ltd., are to convert pattern shop into offices at Rocket-st.—Industrial Sidings, Ltd., are to extend drawing office at Elton-parade.

Durham.—C.C. has prepared schemes for hostels for old people at Hebburn, Billingham, Stanley and Bishop Auckland. G. R. Clayton, County A., Court-ln., Durham.

Durham.—M.O.W. have announced that an early start will be made on the erection of new Crown buildings, Hallgarth-st.

Gateshead.—Corporation has prepared a scheme for new municipal buildings at the civic centre at Shipcote-rd. Est. cost £150,000. Boro' A., H. J. Cook, Town Hall.

Gateshead.—M.H. has approved layout plans by T.C. for 5 houses, Beechwood and Pinewood gdns., and 24 houses, Firwood-gdns.

Henley.—Housing and Sanitary Comm. resolved that Unity Structures, Ltd., be asked to commence negotiations for erection of Unity houses, including old people's dwellings, on Sonning Common and Binfield Heath sites.

Huyton (Lancs).—Housing Comm. have approved in principal a master plan for a new estate, which provides for a community centre, churches, schools, a public-house and aged pensioners' hostel.

Irthlingborough.—U.D.C. surveyor to prepare plans for 20 houses.

Kidderminster.—R.D.C. propose 24 houses and four aged bungalows at Chaddesley. Surveyor, A. S. Northover.

Lincs.—C.C. propose conversion of N.A.A.F.I. centre at Alma Park estate into a county school. C. B. Metcalfe, County A.

Liverpool.—Regional Hospital Board propose following schemes:—Adaptation of part of west wing at Southport Promenade Hospital as temporary nurses' home (£5,750); reconstruction of wards G, H and K at Fazakerley Sanatorium (£10,000); preliminary plans prepared for operating theatres and surgical block at St. Helens; physiotherapy department at Walton; ante-natal clinic at Chester City; conversion of ward A1 to pathological laboratory and extensions to X-ray department at Alder Hey.

Liverpool.—Plans have been prepared by A. Neville Holt, F.R.I.B.A., 43, Imperial-bldgs., 20, Exchange-st. East, Liverpool 2, for a mill building, Marlborough-st., for Charles E. Turnock.

Macclesfield.—Trustees of R.O. Community Hall at Moss estate propose extensions.

Manchester.—T.C. to seek loan of £734,471 for 592 houses at Wythenshawe. City A., L. A. Howitt.—To acquire site for rebuilding of almshouses for Mayes, Hartley and Sutton Charities.

Newcastle-on-Tyne.—C. Solomon, 3, St. Mary's-pl., Newcastle-on-Tyne, has prepared amended plans for snack bar and restaurant, Cross-st., for S. Bernstone.—W. Dixon & Son, 1, Collingwood-st., Newcastle-on-Tyne, are architects for an additional floor at Two Ball Lonnen for Barluze Products, Ltd.—Alterations are proposed to "Turks Head" hotel, Grey-st., for James Deuchar, Ltd., Eldon-sq., Newcastle, to plans by Hetherington & Wilson, County-chbrs., 52, Westgate-rd., Newcastle.—United Newcastle Hospitals are to convert No. 15, Framlington-pl. into a nurses' hostel.

North Riding.—E.C. to build prefabricated school canteen at Egton Bridge R.C. school near Whitby.

Northumberland.—C.C. propose to build a number of hostels for aged persons throughout the county. Estimated cost about £6,000 each. Architect, W. W. Tasker, County Hall, Newcastle.

Nuneaton.—B.C. propose houses, 2, Coventry-rd., 4 Heath End-rd., 6 Westbury-rd., 2 Galley Common and 18 Tomkinson-rd.

Oldham.—E.C. received M.O.E. approval for two classrooms at Alexandra Park county school.

Orrell.—U.D.C. propose 24 bungalows, Moor-rd. estate.

Ramsbottom.—U.D.C. propose 30 houses and flats at Acre Meadow estate.

Rotherham.—B.C. seek loan sanction of £67,550 and £53,364 for 54 and 42 houses at Broom Valley estate.

Rugby.—B.C. approved plans for:—Extensions, Williams Works, Newbold-rd., for English Electric Co., Ltd.; 29 houses, Bilton-pl. estate, for Kingsway Housing Association, Ltd., Stafford. Architects, Grenfell Baines Group, Preston.

Runcorn.—U.D.C. to erect, subject to M.O.H. approval, 500 houses for I.C.I., Ltd.—Approved plans for extensions to workshops at Salt Works, Weston Point, for I.C.I., Ltd.

Salford.—T.C. approved plans for:—Single-storey building, corner of Harrison-st. and Brighouse-st., for James Hodgeson (Salford), Ltd.; extensions to factory at Willow Bank Works, Whit-la., for J. P. Fielding & Co., Ltd.; factory at Britannia Mill, Britannia-st., for Hill, Son & Wallace, Ltd.—T.C. seek loan of £21,200 for day nurseries at Hayfield-ter., Pendleton, and Bradshaw-st., Broughton.—Salford Housing, Ltd., to let contract in April for 92 flats at Salford Brow.

Sheffield.—Proposed schools: Totley county prim., Jordanthorpe sec. tech. City A., W. G. Davies. Quantity surveyors, Thos. Barratt, Son & Partners, Ltd., London.

Sheffield.—Laboratories proposed for United Steel Co., Ltd. Architects, J. Mansell Jenkinson & Son, Norfolk-row, Sheffield.

South Westmorland.—R.D.C. propose houses, Burton (Drovers Way) 6, Storth 6, Plumgarth 4, Meathop 4, Holme 8, Milnthorpe 10.

Stanley (Co. Durham).—U.D.C. applied for sanction to borrow £66,558 for 44 houses, Durham-rd., South Stanley. Sanction has been received to borrow £24,130 for 18 houses on South Stanley estate. J. R. Heslop, U.D.C. S.

Sunderland.—T.C. received sanction to borrow £48,000 for a gymnasium, assembly hall, and crush and entrance halls at Sunderland training college.—H. C. Bishop, Boro' A., has prepared plans for additions to offices at Grange House, Stockton-rd.—Matkin & Hawkins, Barclays Bank-chbrs., Fawcett-st., Sunderland, are architects for reconstruction of Southwick Social Club, The Green, Southwick.—S. W. Milburn & Partners, 9, Esplanade, Sunderland, are architects for additions to Hinds Bridge Mills, Hind-st.—Edwin M. Lawson, Barras-bldgs., Barras Bridge, Newcastle-on-Tyne, has prepared plans for rebuilding "Frederick Hotel" and adjoining shops in High-st. West.—Additions comprising 38 bedrooms and 29 bathrooms are planned at "Seaburn Hotel," near Whitburn, for Vaux and Associated Breweries, Ltd. Architects are William & T. R. Milburn, 17, Fawcett-st., Sunderland.—Revised plans are being prepared by Boro' A. for 12 homes for old people, Hill View, Sunderland.

Tipton.—B.C. to obtain tenders for 92 houses at Roberts Field site.

Ulverston.—R.D.C. propose houses, Haverthwaite, Cartmel and Broughton Beck, 6 each; Newbiggin, Broughton, Flecksburgh and Lindale, 4 each.

Wallingford.—R.D.C. accepted Housing Comm. proposal to erect 8 "Unity" houses at Brightwell, 4 at East Hagbourne, and 6 at Sinodun-rd., Didcot.

West Bromwich.—Plans submitted to B.C.:—Alterations at 66, High-st., per A. J. Smith, builder, 39, Pitt-st.; extensions for Vowles Aluminium Foundry Co., Ltd., Bank-st., Hall End; extensions at Whitehall-rd., Great Bridge, for Conex Terna, Ltd.; meter and furnace house, Friar Park-rd., for Smith & Davis, Ltd.; extensions at Sheepwash-la. for Great Bridge Foundry Co., Ltd.; extensions at Brickhouse-la. for Steel Parts, Ltd.; 3-storey building at Queen-st. for Robinsons (Confectionery), Ltd., 47, New-st. Architect, F. J. Meeson, 131, Lochfield-st., Walsall.

West Riding.—E.C. approved expenditure of £65,225 for additional classrooms in various schools.

Wigan.—R.D.C. propose houses: Dalton 12, Haigh and Worthington 12, Parbold 12 and Writhington 36.

Worcs.—C.C. propose 50 houses at Halesowen, Stourbridge, Oldbury, Kidderminster, Redditch and Worcester.

Workington.—B.C. seek approval for preservation work at Workington Hall at £5,750.—Approved site plan for grammar school at Schoose for C.C.

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TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Billericay.—Five blocks of flats at Seven Acres, Wickford site, Contract No. 12, for U.D.C. S., Council Offices: *Messrs. Parrish, Ltd., Billet-la., Hornchurch, Essex, £18,286.

Bootle.—Houses for B.C. Six at Irlam-rd. and two at Marsh-la: ‡R. Webster, 4, Waller-st., Liverpool, £8,040 and £2,776.

Bradford.—30 houses at Buttershaw estate, for T.C.: *Direct Labour.

Carlisle.—Factory at Harraby, for R. Hind, Ltd.: *John Laing & Son, Ltd., Carlisle.

Chester.—Eighty-six houses at Saughall, for key workers at the new Atomic Research factory at Capenhurst, Wirral: *Alfred Halliwell & Son (Chester), Ltd., 26 three-bedroomed and 16 four-bedroomed houses, £61,744; *Irby Estates, Ltd., 44 three-bedroomed houses, £58,770.

Darlington.—Two blocks of three cottages each, for old people, on the Haughton site North, for T.C. Boro' A., E. A. Tornbohm, Central-bldgs.: Direct Labour.

Durham.—24 houses on Sunderland-rd. estate, for City Council. W. J. Greene, City E.: *J. W. White (Contractors), Ltd., High Barnes Works, Sunderland.

Durham.—46 houses on Long Acres site, for City Council. W. J. Greene, City E.: *William Norman, West-la., Chester-le-Street, Co. Durham.

Hove.—36 flats at Sunninghill, for T.C. B.S., Town Hall: *Morgan & Murray, Ltd., 1 and 3, Franklin-rd., Portslade-by-Sea, Sussex, £30,828 (subject to M.H. approval).

Hull.—40 aged persons' dwellings at Bilton Grange estate, for T.C. City A., Guildhall: *Mr. A. Farret, 18-19, Lincoln-st., Kingston-upon-Hull.

Kidsgrove.—16 houses at Galleys Bank estate for U.D.C. E. & S., Town Hall. *H. Hoskins, Furlong-rd., Tunstall, Stoke-on-Trent.

Lincoln (Parts of Lindsey).—Alterations and additions at Farm Institute, Riseholme Hall and Grange, for C.C. Brewill, Son & Nunn (A.), Armitage-chbrs., Victoria-st., Nottingham. Quantities by Robert E. Webbon: ‡Wm. Wright & Son, Ltd., Park-st., Lincoln, £5,278.

Liverpool.—34 houses at Childwall-rd., Mosspits-la.: *Hall & Williams, £62,377; 32 war emergency house conversions at Speke: *Unit Construction Co., Ltd., £37,325.

Liverpool.—404 houses and 108 flats for aged persons at Speke: *Unit Construction Co., Ltd., £684,839.

L.C.C.—Contracts exceeding £2,500 in value placed by L.C.C. during period ended March 7:—Supply and erection of sawn oak pale screen fencing at Headstone-la. estate, Harrow, Permafence, Ltd., 241a, High-st., W.3. Erection of blocks B (part), E and F on the Kilburn Vale area, Hampstead, Sloggetts (Contractors), Ltd., 209, High-st., Hampton Hill, Middlesex. Reinstatement of greens and planting of trees and shrubs at Sumner estate, Camberwell, Messrs. McDonald, Tweedy & Co., 17, Balfour-av., Hanwell, Middlesex. Erection of new school at Westville-rd., Hammersmith, C. F. Kearley, Ltd. Improvements to the sanitary accommodation at Friern School, S.E.22, Flowitt & Co., Ltd. War damage repairs at Langford-rd. school, Fulham, Unera Construction Co., Ltd., 386, Kensington High-st., W.14.

¶London (Admiralty).—Following are particulars of contracts made by Civil Engineer-in-Chief's Dept., Admiralty:—

Shotley: H.M.S. "Ganges." Extension to wardroom and new stores block, Rogers Bros., Ltd., Station-rd., Felixstowe. *Hinstock*: R.N.M.T. Depot, Resheeting hangar roof, E. H. Smith (Westhaven), Ltd., Acocks Green, Birmingham 27.

¶London (Admiralty).—*Chatham*: H.M. Dockyard, steelwork for slip gantry, Dawnays, Ltd., Steelworks-rd., Battersea, S.W.11.

¶London (M.O.W.).—Contracts placed by M.O.W. for week ended March 4:—*Cambridge*: Queen's Senior School, Wisbech, erection of additional classrooms, B. Stokeley, Henry-st., Peterborough. *Durham*: Post Office, Bishop Auckland, alterations and additions, R. Blackett & Son, Ltd., 63, Bondgate, Darlington. *Hampshire*: Ministry of National Insurance, 98, High-st., Lymington, repairs and alterations, Rushley & Co., Ltd., 77, High-st., Lymington.

¶London (War Dept.).—Works contracts placed by War Dept. for week ended March 4:—

Wilts: Building work, Edwin H. Bradley & Sons, Swindon; Building work, S. W. Foster, Ltd., Radstock; Heating and hot water installation work, C. W. Hinchcliffe, Bournemouth. *Essex*: Building work, T. J. Evers, Ltd., Tiptree.

Matlock.—Further 24 houses at Hurst Farm estate, for U.D.C.: *J. W. Wildgoose & Son, Ltd., Matlock, £31,075 (subject to approval).

Middlesbrough.—Improvements to Middlesbrough General Hospital, for Newcastle-on-Tyne Regional Hospital Board: *N. Thompson, Ltd., Stonehouse-st., Middlesbrough.

Middleton.—Houses for B.C.: *H. Green & Sons (8); *R. Partington & Sons, Ltd., Lodge-st. (8); *Booth, Tonge & Co., 58, Mainway, Alkrington (8); *H. Pickup, 18, Meadow-rd. (6); *Ashton Smethurst (Builders), Ltd., Suffield-st. 6); *A. Redfern & Son, Ltd., Fields New-rd. Chadderton (6); *F. Heywood & Co., 97, Higher Wood-st. (4); *Whitworth Bros., 480, Oldham-rd. (4); *H. Ogden & Co., Oldham-rd. (4); *Whiteman & Ashton, 86, Foxdenton-la., Middleton Junction (2). (All of Middleton.)

Morley.—30 houses at Vicarage-ave. estate, Gildersome, for T.C. M. H. Brook (A.), Housing Director, National Provincial Bank-chbrs., Queen-st.:—Brick: *W. J. Kendall & Co., Pudsey, £20,830. Joiner: *A. Wood-Mitchell, Pudsey, £5,994. Tiler: *James Season, Ltd., Leeds, £2,008. Plasterer: *Morley & D.B.T., Morley, £2,491. Plumber: *F. Hargreaves & Son, Churwell, nr. Leeds, £4,659. Painter: *T. Hanson, Batley, £920.

Newcastle-on-Tyne.—Erection of two classrooms at Lower Condercum House Special Boys' School, for E.C. G. Kenyon, City A., 18, Cloth-market, Newcastle: *George Bainbridge, 205, Westgate-rd., Newcastle-on-Tyne, £5,460.

Peterborough.—Branch library at junction of Orchard-st. and Queen's-walk, for T.C. F. J. Smith, M.B.E., A.M.I.C.E., City E. & S., Town Hall. Quantities by F. J. Smith, M.B.E., A.M.I.C.E.: *W. L. Russell, Park-st., Peterborough.

Rutherglen.—Extensions, classrooms, etc., at the Bankhead Primary School. Mr. William Watt, architect, Albert-st., Motherwell-Wishaw: Excavator, brick and building works, etc., Conversions, Ltd., St. Rollox, Glasgow. Carpentry, Joinery and allied, etc., works, Lanarkshire County Direct Labour Department, Motherwell-Wishaw. Slater, concrete and allied, etc., works, William Ballantyne, Ltd., Hamilton. Plaster, lathing and allied, etc., works, James Kemp & Sons, Ltd., Glasgow. Plumber, sanitary engineering and allied, etc., works, Conversion, Ltd., St. Rollox, Glasgow. Electrical fittings and installation, etc., Small and MacDonald, Ltd., Glasgow. Heating installation, etc., works, Lanarkshire County Direct Labour Department, Motherwell-Wishaw.

Sedgefield.—40 houses in Linden-rd., West Cornforth, for R.D.C. Plans by Housing A.: *Marsh, Ltd., Bishopton-rd., Stockton-on-Tees.

Sheffield.—Houses for T.C. 20 at Norton-av. estate: *Edmund Oxley (Contractors), Ltd., 44, Greenhill-rd., Woodseats, £26,752; 44 and 64 flats at Manor Park estate: *J. W. Sivil, Ltd., 39, Canterbury-av., £61,264 and £69,067. Following at Parsons Cross estate extension: *W. Redmile & Sons, Ltd., 155, Dobcroft-rd., £47,955 (38); *C. L. Marcroft, Ltd., Morstonecres., Totley, £26,451 (22); *Bailey & Martyn, Ltd., £63,342 (56); *F. Ridal & Sons (Builders), Ltd., 8, Cobden View-rd., £37,634 (30); *Curtis Redmile & Son, 11, Gleadless Common, £19,745 (16). (All of Sheffield and subject to approval). Additional classrooms and lavatory accommodation at Marcliffe County School: *R. S. Hutchinson, Ltd., 430, London-rd., £6,966. Reinstatement of roof at Woodthorpe Bath: *M. J. Gleeson, Ltd., 822, Chesterfield-rd., £5,397.

Surbiton.—Factory at Portsmouth-rd., for The Hadley Engineering Co. Architect, John Green, L.R.I.B.A., 262, Malden-rd., New Malden, Surrey: *Baileys Builders & Contractors, Ltd., Burlington-rd., New Malden, Surrey.

Wallasey.—Houses for B.C.: *Lloyd & Cross, Ltd., 68, Argyle-st., Birkenhead, £64,445 (52); *Wm. Thornton & Sons, Ltd., 38, Wellington-rd., Liverpool, £33,121 (24); *W. H. Farrell, South Bank, Runcorn, £40,440 (32); *W. F. Farrell, 3, Cobham-rd., Moreton, £18,068 (16); *Cheshire Contractors, Ltd., Old Market site, Wallasey-rd., Wallasey, £8,833 (8).

Walsall.—Adaptation of No. 111, Birmingham-rd., for home for aged, for C.B. M. E. Habershon, O.B.E., M.Eng., B.E. & S., Walsall. Quantities by Collins & Britton, Birmingham: *F. A. & H. Taylor, Croxstalls-rd., Bloxwich, £9,629.

Windermere.—20 houses on the Oldfield estate, for U.D.C.: *James H. Atkinson, £27,886 (subject to M.H. approval).

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